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NOVEMBER/DECEMBER 2002

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VARIETAL REVIEW
Malbec —
Argentine vineyard jewel

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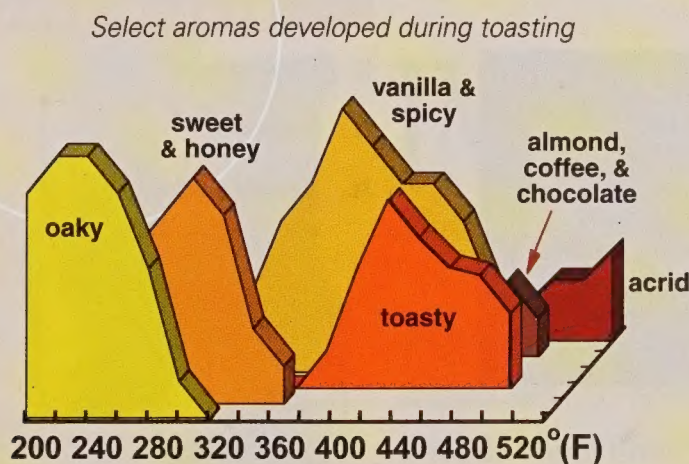
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PW PRACTICAL WINERY & VINEYARD

NOVEMBER/DECEMBER 2002 • VOL. XXIV, NO. 4

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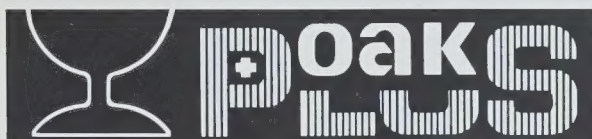
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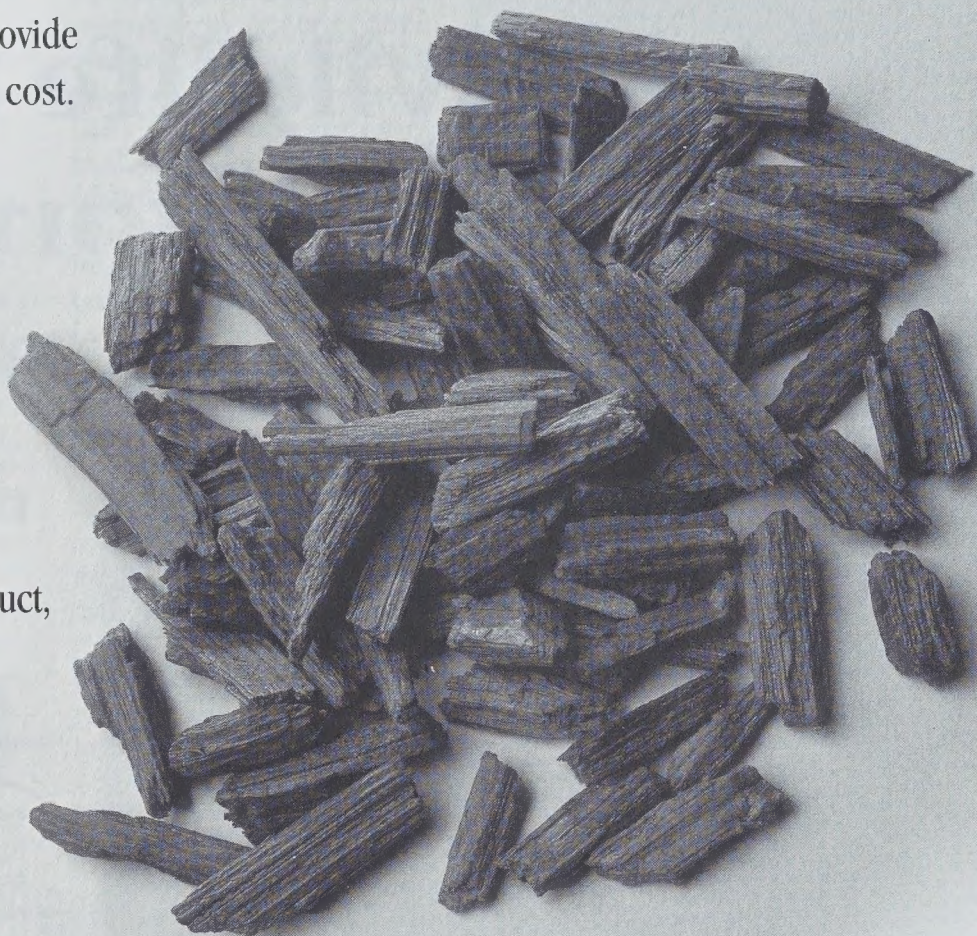
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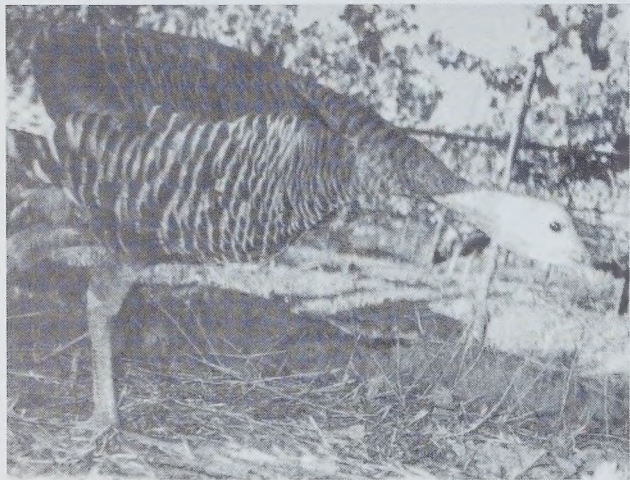
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VINEYARD LANDSCAPE

Wildlife activity along creek corridors



BY Jodi Hilty* and Adina Merenlender,
Dept. of Environmental Science,
Policy, & Management,
University of California, Berkeley

Learning how to manage agro-ecosystems to conserve natural resources and wildlife is an ongoing challenge for agriculture the world over. Agro-ecology focuses on the farm, where farming practices, land management, and restoration can enhance production and improve ecosystem health. In California vineyards, for example, a great deal of progress has been made in promoting biodiversity by increasing the use of cover crops and hedgerows.^{1,4}

Improving land stewardship so that farming can remain a way of life for future generations is a laudable goal. However, the concept of sustainable agriculture goes beyond the boundaries of the vineyard to include entire ecosystems, the myriad of species these systems support, and the goods and services they provide.

In California, many agricultural valley floors are dominated by vineyards and, over the past 10 years, vineyards have been expanded into higher elevations and natural habitat. Many voices have been raised concerning the impacts of this monoculture on wildlife and the consequences of increasing habitat loss.

A central question is whether or not intensively managed agricultural landscapes exclude native flora and fauna due to a lack of habitat diversity. However, little is known about how wildlife use exist-

Infrared cameras captured nighttime inhabitants of wildlife corridors in Sonoma County, CA.

ing agro-ecosystems, and in particular, what species are sustained across California's vineyards.

Maintaining small populations requires that animals be able to move among remnant habitat patches to find adequate resources.² In an effort to conserve wildlife populations in fragmenting landscapes, managers and conservation biologists have proposed the use of habitat corridors — strips of intact habitat between two or more otherwise disjunct habitats.⁵

Although theoretical assumptions abound, few studies provide empirical evidence that wildlife use corridors. Of existing corridor studies, few examine spatial scales large enough to be relevant to landscape management, and few studies focus on mammals that exist at low population densities — such as carnivores — which most need corridors to survive.

Most wildlife corridors, both remnant (sometimes called *de facto* or "by

default") and designed, are riparian corridors that are essential to protect river systems. Without knowing whether wildlife preferentially use riparian corridors in highly modified landscapes, it is difficult to develop appropriate guidelines for farmers on maintaining riparian corridors for wildlife movement.

Several recent land-use issues in northern California have made a riparian wildlife corridor study appropriate and timely. The decline of anadromous fisheries, invasion of exotic plant species into riparian zones, and hillside vineyard expansion have prompted concern about riparian corridors. Additionally, there is increasing recognition that riparian corridor vegetation is important for terrestrial wildlife.



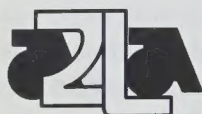
These issues have led resource and land management agencies, environmental organizations, grape-grower associations, and other groups to take increasing interest in establishing appropriate guidelines for buffers around creeks and riparian corridor management in northern California.

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STEWARDSHIP

Our study

Our primary goals in this study were to quantify the presence (and absence) of wildlife in riparian corridors adjacent to vineyards to assess which mammalian predators used them. Additionally, we wished to examine whether the width of the corridor affected wildlife composi-

tion in the riparian zone. If so, it would be an important factor in future planning, since corridor width varies greatly between vineyards, and is sometimes regulated or under consideration for government regulation.

Two non-baited remote-triggered cameras were placed at 21 riparian cor-

ridors in Sonoma Valley and Alexander Valley (Sonoma County, CA) where vineyards abut riparian zones. The riparian corridors originate in relatively natural hillside oak woodland of the Mayacamas Mountains and drain into either the Russian River or Sonoma Creek. Creeks on the opposite banks of the Russian River and Sonoma Creek also originated in hillside oak woodlands, theoretically creating riparian corridors that connected oak woodlands on either side of Sonoma Valley and Alexander Valley.

We sampled three types of riparian corridors: 1) denuded corridors had very little natural vegetation along the creek; 2) narrow corridors had a strip of vegetation ranging from 10 to 30 meters on each side of the creek and; 3) wide corridors had more than 30 meters of natural vegetation on each side of the creek.

Presence and absence data were recorded by site for each species of mammal predator. Mammal predators were detected using cameras with infrared devices that sensed wildlife and triggered the shutter from dusk to dawn. Two cameras at each of the 21 creek sites for 30 functional days resulted in 435 photos of mammalian predators across all sites (Figure 1).

Native species detected included striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and mountain lion (*Felis concolor*). Non-native mammalian predators detected included opossum (*Didelphis virginiana*), domestic cat (*Felis catus*), and domestic dog (*Canis familiaris*). Another 240 photos were taken of non-focal species including jackrabbit (*Lepus californicus*), black-tailed deer (*Odocoileus hemionus*), and several rodent and bird species.

There were a nearly equal number of photographs taken of all mammal predators at each riparian corridor site type — denuded, narrow, and wide. Despite the similar number of photos across riparian sites, the number of mammal predator species found across corridor categories differed, and the composition also varied across categories. Significantly more species of mammal predators were detected in wide riparian corridor sites than narrow or denuded sites.

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In addition to the difference in numbers of species by site type, the species composition was different. Domestic cats were detected primarily at narrow and denuded riparian corridor sites. Unique coat coloration and markings distinguished one to five individual cats in each of the denuded and narrow site types and only one individual cat at the different wide riparian corridor sites.

Bobcats and coyotes were found primarily in wide corridors, and striped skunks and gray fox also were detected proportionally more there than in other categories. Raccoons and opossums were found widespread across all creek categories and sites, such that there was no significant difference in use among wide, narrow, and denuded corridors by these species. Only one mountain lion was detected at a well-vegetated narrow riparian corridor site.

These results indicate that both the number and composition of mammalian predators change based on

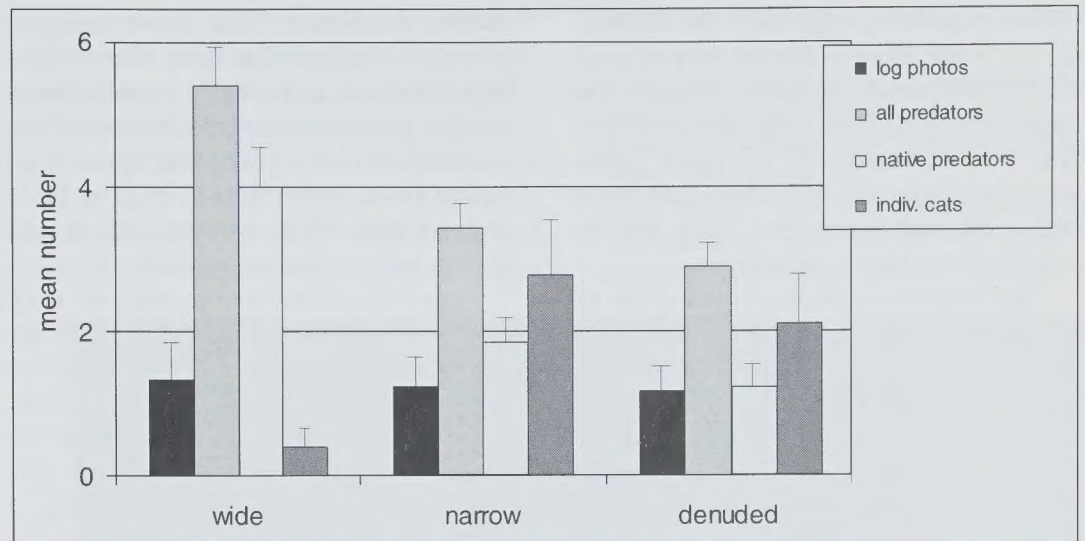


Figure 1: Mean and standard error of number of: all predators, native predators, and individual cats detected as well as number of photos taken of all mammal predators (log transformed) in wide (n=5), narrow (n=7), and denuded (n=9) corridor treatments using remotely-triggered cameras.

different widths of natural vegetation along creeks. A greater diversity of all mammalian predators and more native mammal predators were found in wide riparian corridors,

compared to narrow or denuded corridors.

Large native predators were detected primarily in wide riparian corridors, and smaller native and non-native mam-

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STEWARDSHIP

malian predators, especially the domestic cat, were more active in narrow and denuded riparian corridors. Despite the large sampling effort, only one mountain lion was detected and no black bears were ever detected, indicating that these highly altered landscapes may not be serving these larger carnivores.

The number of photographs taken of mammal predators can be related to a general measure of activity level. Photo results suggest that general mammal predator activity levels among denuded, narrow, and wide riparian corridors were similar. However, there were fewer species at the narrow and denuded sites than the wide riparian corridor sites.

The loss of predator diversity did not lead to lower activity levels in narrow corridors. Instead, smaller native and particularly non-native mammalian predators became more active. This relationship is suggestive of "meso-predator release," where the loss of larger predators leads to an outbreak of smaller and often non-

native predators. This is a concern, because other studies have shown that high numbers and activity levels of these smaller predators, such as domestic cats, can lead to heavy predation upon other native fauna in the system, such as birds and rodents. This cascading effect can lead to further species declines.

Some mammalian predators may cross vineyards rather than travel along degraded riparian corridors. However, we conducted a separate study that indicated overall levels of vineyard use by these mammal predators was very low compared to riparian corridor use, a result which indicates the preferential use and importance of these riparian zones for wildlife.

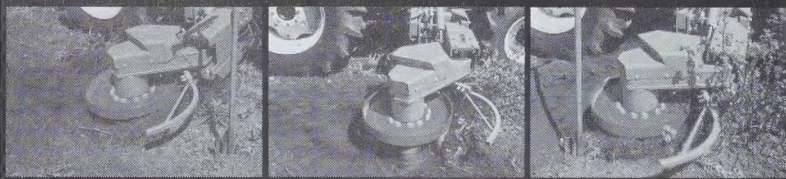
Average detection rate of predators per functional camera in riparian corridors was 0.345 per night, compared to 0.031 per night for cameras in vineyards. Mammalian predators were 11 times more likely to be detected in creek corridors than in vineyards. This is

probably a reflection of their avoidance of vineyards and the importance of riparian zones. Also, many native species were not detected at all much beyond the habitat vineyard edge, indicating that large expanses of vineyards may be a barrier for them.

As vineyard and housing developments expand across the oak woodland landscape, core habitat areas will be smaller and increasingly isolated from one another.³ The probability of mammalian predator occurrence across expanding vineyard areas will decrease.

Some species, including grizzly bears (*Ursus arctos*) and wolves (*Canis lupus*) are known to be extinct in California already. There were no detections of spotted skunks (*Spilogale gracilis*) and only one mountain lion. Both species have historically been known to range throughout the study area, but are also known to be sensitive to human activity and habitat loss and fragmentation.

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Spotted skunks are thought to already be extinct in Sonoma County, but mountain lions continue to persist in the mountains. Studies in southern California have documented extinction of mountain lions from increasingly fragmented habitats⁶, and careful planning will likely be needed if this animal is to survive in Sonoma County in the future.

Maintenance of wide corridors may be important where they are regularly used by the remaining spectrum of mammalian predators and other species, if these species are to remain in the region in the long-term.

Further research is needed, however, to better understand how individual wildlife in riparian corridors contribute to overall long-term species survival. Meanwhile, these findings provide another good reason for grapegrowers and all land owners to set back from creeks and for the public to provide incentive to landowners to retain more riparian habitat, leaving these valuable corridors unfenced for free passage by wildlife that remain on vineyard landscapes. ■

Acknowledgements

The Sonoma Ecology Center, Circuit Riders Production, Inc., the Theodore Roosevelt Memorial Fund, the Sarah Bradley Tyson Memorial Fund, the USDA Renewable Resources Extension Act, the University of California at Berkeley, the Bureau of Land Management, Michael Jaeger, William Bleisch, William Lidicker, Jr., Kerry Heise, Colin Brooks, Emily Heaton, and Dale McCullough provided support to this project. The study would also not have been possible without the help of several dedicated Sonoma County grape growers whom we thank for their kind support.

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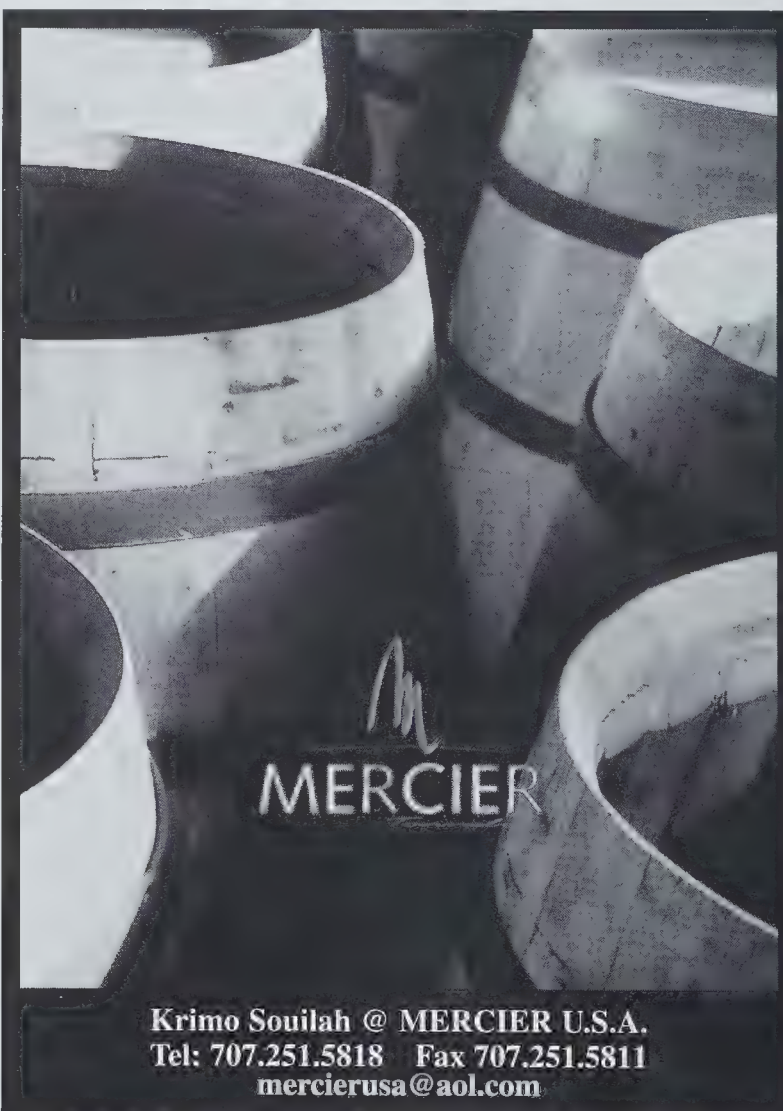
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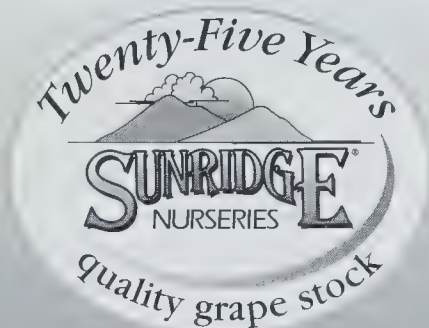
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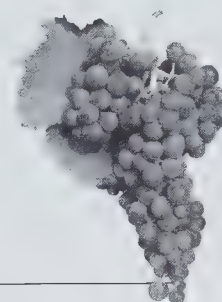
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Reaching 100% of potential wine consumers

BY Eleanor & Ray Heald,
Contributing Editors

Millions of potential wine consumers have little meaningful information enticing them to buy wine, says winespeak guru Tim Hanni, MW. He also labels the wine industry as a long way behind the curve in understanding consumers and incorporating technology to sell more wine to more people.

Hanni is founder and president of Winequest Solutions (Napa, CA), a strategic marketing company that provides products and services to manage, promote, and sell wine at all levels of the distribution chain.

"What's unique," Hanni maintains, "is that we have created a new consumer model based on psycho-sensory influences and how to strategically market to 100% of consumers. This new consumer model has allowed us to generate critical industry solutions delivered through state-of-the-art technologies."

Whoa! "Psycho-sensory" is a million dollar word for most wine sales people. "True," Hanni admits. "But the wine industry needs to know what psycho-sensory influences are and how wine sales benefit from understanding their implications. This understanding opens up a tremendous opportunity to quickly and effectively sell more wine."

Through all the upbeat winespeak, Hanni's aim appears to be breaking down barriers and putting an end to rigid thinking about wine, obsolete traditions, and snobbism. His goal is to throw the door of common sense wide open to some fresh, well-founded thinking about how to increase wine sales.

Using a psycho-sensory foundation, Hanni's perspective begins with consumers and developing effective communication with them in easily under-

stood language. Actually, the process starts with two simple words, describing wine that consumers can easily relate to: MILD or STRONG.

Winequest Solutions' primary product, WineInsight, is a technology-driven wine list management and training program that offers immediate opportunities to increase wine sales through a wine flavor and language system. "It begins," Hanni says, "with a solid, provable, and expert understanding of consumer psycho-sensory traits. We then were able to design applications to increase wine sales."

"Without that, we're just another herky-jerky company that has come along with a new, short-term way to sell wine. We're different because we lever-

age technologies that are built on a solid foundation of consumer understanding. This provides the platform to create dynamic solutions for all tiers of the wine industry."

Understanding consumers

Sensory scientists have long understood that humans make decisions based on biology, which includes flavor, and on psychology, which comprises emotional elements and life experiences. Thus the term psycho-sensory.

As humans, we all start out with pure biological responses to flavor, which are part of our survival instincts. Over a period of time, we accumulate some degree of psychological relevance that affects wine preferences. The other critical element is that all consumers are biologically unique and may experience completely different sensations from the same wine flavors.

Hanni asserts that a consumer can be anywhere along the spectrum of making wine choices based on biology (flavor) to psychology (emotion) [Fig. I]. For example, that includes the person who values a certain artisanal wine that comes from a noted region and is



This glass containing red and white wine captures one of the basic questions in Tim Hanni's approach to wine lists: Which is the heavier wine?

grown at 1,500 feet altitude. Such a consumer has a narrow range of flavor expectations, and, in this case, emotion (far right of spectrum) plays an important part in the selection process.

For other consumers (far left of spectrum), wine is simply a beverage option that must provide a positive biological response (flavor). That is all they need or want to know. This is the "opportunity consumer," from a market segment that has so confounded the wine industry. For marketing purposes, the wine industry must recognize that consumers cover the entire spectrum and to reach everybody, two elements are essential. Marketers must:

1) Provide flavor information, so a consumer can find a wine he/she likes based on flavors that are biologically attractive.

2) Market to psychologically motivated consumers in a way that does not alienate those who simply demand a wine they personally find delicious.

"The big opportunity," Hanni adds, "is recognizing that what's working for people who are skewed far right may not work for those at the far left. Prejudices — such as red wine goes better with steak — alienate consumers who simply prefer White Zinfandel or Chardonnay and will be delighted with these wines with their steak.

"Otherwise we risk losing wine sales to the beer industry, which is more than happy to supply any beer the consumer wants with his/her steak. Consumers do not feel restricted by a false sense of appropriateness. This same illustration can be applied to ethnic foods and myriad dining situations.

"The psycho-sensory model gives us a powerful tool to understanding all consumers, so we can deliver meaningful information. It offers confidence that the preferred wine is great with the food that is ordered, producing millions of incidents of consumption."

Yet, there's an industry expectation that everybody begins at the far left and moves to the right as their palate "matures." "Get over it," Hanni insists. "Many people simply become emotionally corrupted — psychologically attached to the wine ritual — and from a marketing standpoint, that is a 'win' for the industry."

The opportunity lies with consumers "on the left" who are fully mature, intelligent, and often very sensitive tasters, usually with extreme sen-

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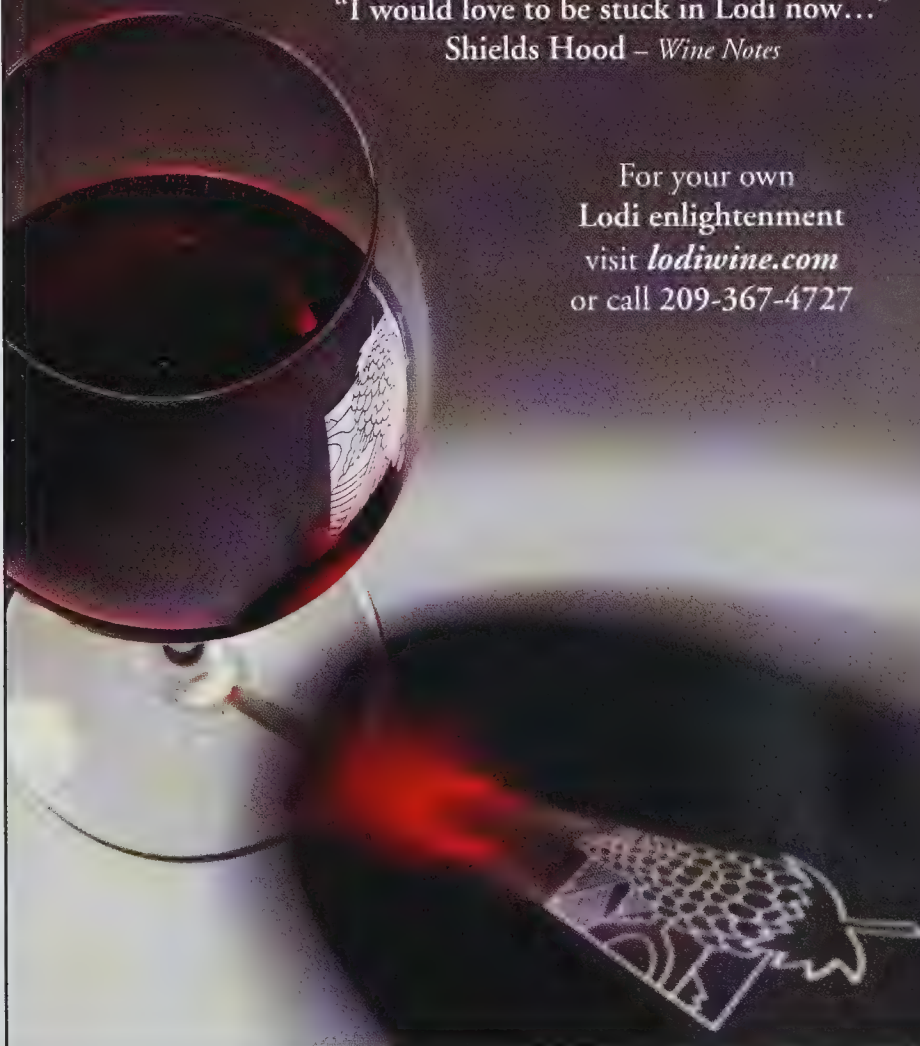
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sitivities to bitterness and acidity [Fig. II].

Hanni was introduced to the psycho-sensory phenomenon by working with Michael O'Mahoney, Ph.D, and Benoit Rousseau, Ph.D (University of California, Davis) whose doctoral dissertations focused on the psycho-sensory phenomenon.

The psycho-sensory model enables Winequest to understand consumers and how to strategically market to them. The company focuses strategies to deliver meaningful information, that directly targets consumers at their comfort level without intimidation.

Understanding and communication

The strategy is clear: deliver simple, non-judgmental flavor information for those who want it simple. This enhances the wine industry's ability to communicate about wine and sell it to 100% of the market.

Winequest developed a wine flavor profiling and communications system,

with sensory scientists, wine experts, and real people research. It is referential and non-judgmental and based on a premise of "mild" and "strong" flavor attributes.

"Our language," Hanni illustrates, "uses phrasing such as: 'This is a lighter intensity and very fruity wine, while this other wine is less fruity and very oaky.' There are no judgements, such as too sweet or too dry, too oaky, or not oaky enough."

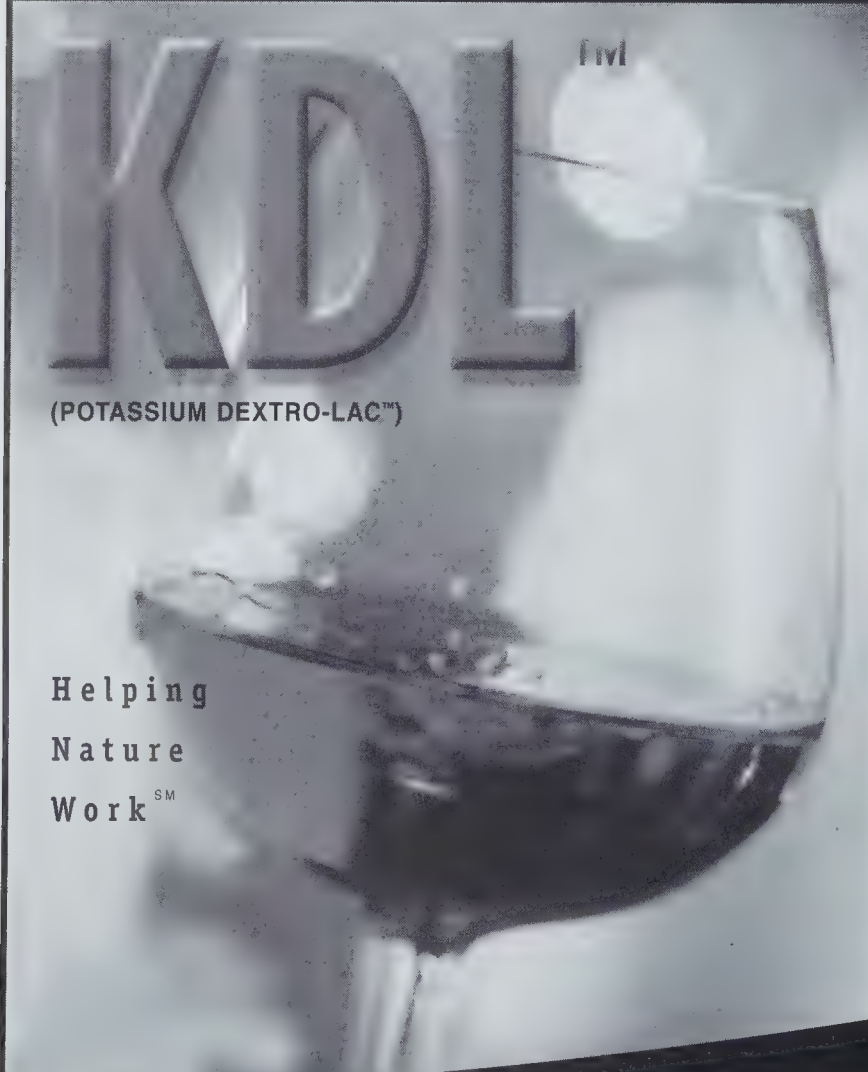
"Those who sell wine need to understand that, while some consumers may want the intensity of a 90+ point, artisanal wine grown at high altitudes, where the vines struggle to grow and other blah, blah, that wine may be intensely unpleasant to someone else because it's simply too strong. We have long recognized a need to augment the success of promoting intense, highly extracted wines, and now have an opportunity to focus on delicacy as a positive attribute again."

Winequest has identified and continues to analyze six primary flavors that

consumers respond to most: sweetness, intensity, fruit, oak, tannins (bitterness), and acidity. A seventh attribute — whether the wine is sparkling, white (including blush and rosé), red, dessert, or fortified — is also associated in the WineInsight system tools to sort wines and develop wine lists. Technology is built around a delivery system for communicating wine flavors.

Winequest proposes flavor category management through an optimal Progressive Wine List (PWL) for restaurants, with offerings in each of 10 flavor categories to address all consumer flavor preferences.

- 1) Sparkling wines
- 2) Sweet white, blush, and rosé wines
- 3) Dry, light intensity white wines
- 4) Dry, medium intensity white wines
- 5) Dry, full intensity white wines
- 6) Dry, light intensity red wines
- 7) Dry, medium intensity red wines
- 8) Dry, full intensity red wines



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- 9) Dessert wines
- 10) Fortified wines

National brands are used to "anchor" categories on a PWL. A hot selling national brand (generally the number one selling wine of its type in the U.S.) is included in each category to drive the consumer to an understanding of the wine flavors represented in that category. [See Optimal Progressive Wine List — Balanced Categories illustration.]

"Restaurants often withhold leading brands from the consumer," maintains Hanni. "The thinking is: 'We don't want it on our list because it's such a good seller. It can be purchased cheaper at a grocery store than we can buy it from our distributor.' What happens as a result? All consumer recognition, comfort, or safety is lost. A restaurant waitperson loses a point of communication about what the consumer may like if an anchor wine is not present on a PWL."

While understanding the profit dilemma this creates, Hanni notes these wines can be strategically placed in the

proper category with a similar tasting, better-margin opportunity wine placed next to it. Through the WineInsight program, service professionals are taught how to gently encourage consumers to try the wine next to or near the anchor wine. If the person is stuck on a best-selling brand, the waitperson can provide the desired wine. If there is openness to try something new, it can be done with confidence that the wine will be equally enjoyable.

Strategy I **Simple, effective communication**

Hanni says there are two effective ways to communicate to a consumer what a wine tastes like. First, develop a language that means something, which is difficult to do, or second, provide a "reference" to a wine with similar flavor.

Hanni maintains that the WineInsight Training System, combined with an optimized PWL, can train someone in 15 minutes to sell wine effectively — regardless of whether they've sold wine before.

Here's how it works: If a diner remarks, "I'd like a sweet wine," the server inquires, "How sweet?" When the diner chooses an anchor wine, such as a White Zinfandel or off-dry Riesling, the server is clued in.

Similarly, if a diner says, "I like dry wines," the server asks, "What dry wines do you like?" If the diner responds: "Beringer White Zinfandel," The server will say: "OK, if you like a dry wine like that, here are others you'll also like that are dry like Beringer White Zinfandel."

Such communication totally removes the possibility of encountering an unpleasant discussion of what is dry or sweet. It also eliminates the embarrassing situation of a relatively new server having to pronounce *Hattenheimer Pfaffenberg Auslese*, which may be in the same category. Pointing to it on the list works just fine!

The optimized PWL, developed using WineInsight technology with anchor wines, ensures that there are

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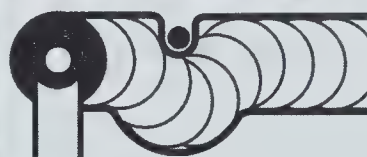
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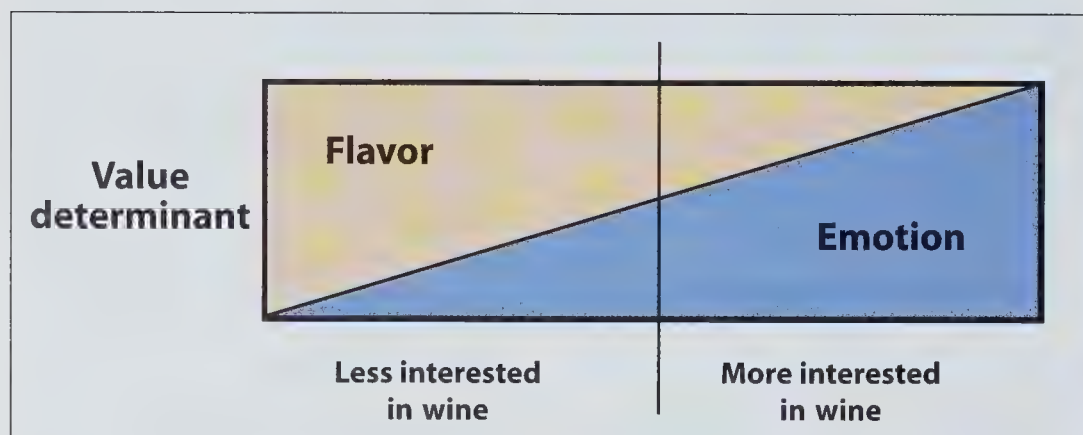


Figure I: Consumer Psycho-Sensory Model

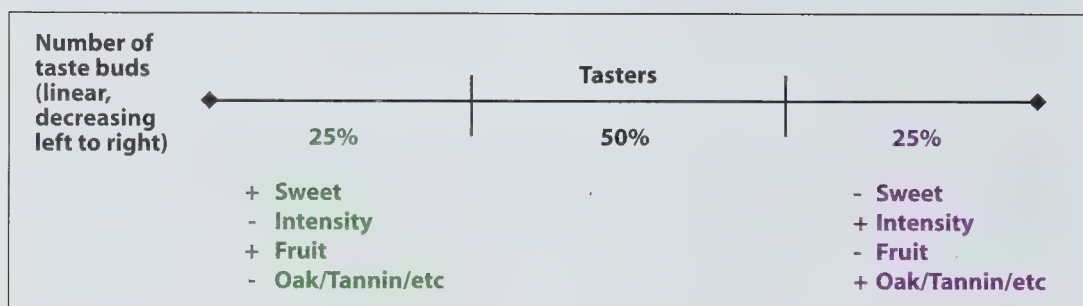


Figure II: Consumer biological taste model

both high- and low-priced wines in every category. As waitstaff learn to communicate with customers, they can encourage them to take a step up in the category for more flavor, intensity, oak, or other appealing characteristics.

Flavor category management

Flavor category management adds a dynamic new dimension to the traditional industry wine list categories such as varietal, region, container size, or type. With a properly managed "sweet white, blush, and rosé wines" flavor category, White Zinfandel drinkers can confidently choose a German wine or an Italian wine, an expensive wine, or a new wine that they've never experienced before.

Flavor categories can also be mixed with traditional categories. Italian wines can be listed in flavor categories. Chardonnays can be listed from milder and less intense (virtually sweet) to more intense and dryer to more oaky. The heading on a wine list communicates just

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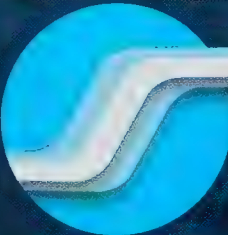
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the simplest, basic attributes. Then in each category, the wines are listed from mild to strong within the category.

Intensity accommodates traditional wine terms, such as body, weight, richness, concentration, and extract, which are less understood by consumers. Intensity as a flavor attribute in categories represents the overall impression of flavor characteristics for a wine.

Strategy II Choosing the "right wine"

In any organization (winery, distributor, restaurant, or retail), management and staff must be trained to start with an understanding that the perfect wine for every consumer is the wine the consumer wants to drink. The consumer may choose that wine because of effective marketing, some critic scored it 93 points, or simply because it offers the flavors the consumer enjoys.

To this end, it's important to realize that, in the WineInsight system, there really is no good wine or bad wine.

Glassware, season, wine and food pairings, or occasion are important only for those who value them. Ratings, scores, and judgments are great tools, but should only be used for those who care.

If someone wants a wine with the aromas of huckleberries or guava, that's fine, but what do we do for those who don't get it or don't care? "Train everyone that wine is good," Hanni responds. "Don't train people that our wines are better or that they're better with food.

"All this contradiction becomes maladaptive and actually becomes part of the negative message that is driving people away. Those who sell wine need to understand this. Our training program respects that if a critic's score of 93 gives a psychological advantage to the consumer, we won't do anything to devalue that.

"Don't expect that somebody else, especially if they are biologically sensitive to bitterness and astringency, is going to agree on the symbolic value the score represents."

Strategy III Tools and training

Training is emphasized by the WineInsight online program. Today, most winery reps are part of an in-house educational program about grapegrowing, soil composition, and other aspects of wine that are unimportant to most consumers. Winequest provides the tools and training to actively sell to all consumers, not just to the 10% who are already comfortable selecting wine.

A well-designed PWL is a powerful tool.

1) It makes it easier for consumers to find a wine they'll enjoy.

2) When the system is properly employed, staff (even those who have little or no wine education) can be trained easily to quickly get consumers to choose a wine they'll enjoy.

3) It introduces new disciplines to creating, maintaining, and managing a profitable wine program.

"If we look at how we've attempted to train people to sell wine in the past," Hanni

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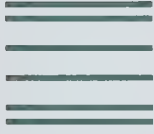


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NOTES

DIARY/IDEAS

SUBJECT

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Their first vintage is a smash in Sweden. After quickly selling 4,000 cases, the alcohol monopoly Vin & Spritcentralen orders 12,000 more. Hedges Cellars expands into other markets, finding success wherever they go. The only question now is (can't at www.svb.com/hedges)

The view is breathtaking. Standing on top of a hill overlooking the lush Sonoma valley, Sam and Vicki Sebastiani raise their glasses for a toast, admiring the land on which they will build their dream. It might not be Tuscany, but (can't at www.svb.com/viansa)

Sometimes family legacies are so deeply engrained, they are fulfilled subconsciously, almost without effort. Fate has a funny way of doing that to people. Take Koerner Rombauer. A pilot from (can't at www.svb.com/rombauer)

Lexington, Kentucky is a long, long way from the Willamette valley. But for Ken Wright, that's where it all begins. Waiting tables at the quaint Fig Tree restaurant, he develops an insatiable curiosity for wine. One that will lead him from the bluegrass (can't at www.svb.com/wright)

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remarks, "it's unrealistic. What we've done here is flip-flop the model for less interested consumers, while letting the 'more interested' consumers play on their terms. This is truly a win-win solution."

National supplier application

Lou Willsea, senior market research analyst for the Brown-Forman (B-F) Wines Group, purchased the Winequest Solutions program in October 2001. "The industry lacks a quantification tool for on-premise sales," says Willsea. "The WineInsight management system provides it. With it, we have created a sales technique that works for our company."

Using WineInsight tools, Willsea first organized the entire Brown-Forman wines portfolio into a PWL. Around the country, sales managers submit on-premise wine lists to his office. The lists are reviewed and suggestions are made regarding which Brown-Forman wines best fit on the list and how they fit in the flavor categories.

"Even wine lists that are sorted progressively," Willsea continues, "are generally out of balance, based on the personal tastes of the person who designed the list. On the other hand, some restaurants with menus that favor a particular type of wine will have a list that is too balanced, with too many wines that don't match well with the cuisine. We use WineInsight tools to train sales managers to help restaurant wine buyers create better fits for an on-premise PWL."

WineInsight recently helped Brown-Forman secure mandatory national list placement of the 2000 McPherson Semillon Chardonnay (\$7 SRP) on the P.F. Chang's China Bistro PWL. "Using Winequest rationale," Willsea adds, "we looked at their list and pointed out a hole that could be filled with this wine."

"This placement alone, although there have been many others, will amply pay for the use of Winequest Solutions WineInsight service by our sales force throughout the U.S."

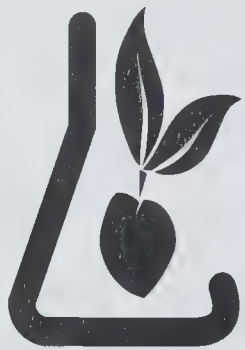
Strategy IV

Rethinking wine and food

Rethinking wine and food pairing constitutes a fourth strategy to increase wine consumption. Winequest's training program encourages people to drink what they want with the food they want.

"We've made huge inroads into chefs' understanding of balancing foods," Hanni reports. "Fetzer's culinary director John Ash, Robert Mondavi executive chef Sarah Scott, and Beringer Vineyards executive chef Jerry Comfort use the program."

P.F. Chang's China Bistro is Winequest Solutions' prototype customer. The chain specializes in dishes from five major regions of China in high-energy settings with open kitchen and exhibition wok cooking. It won the chain restaurant wine program of the year award at the Cheers (AC Nielsen/Adams Publishing Group) Beverage Conference in April 2002.



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P.F. Chang's will not allow distributor or winery personnel to conduct staff training in its restaurants until suppliers have gone through P.F. Chang's wine program orientation, which includes the Winequest program.

Does it work?

Gary Schwartz, P.F. Chang's director of purchasing, has used the WineInsight online tools for the entire calendar year 2002. The online component is used by market partners (regional managers) and waitstaff, directly impacting 7,000 servers in 70 locations.

"The program is one of the tools we use to manage P.F. Chang's wine program," Schwartz explains. "It promotes wine through a focus on flavors and guest preferences rather than varietals. Because of the myriad textures and flavors of sweet and spicy Chinese cooking, traditional food and wine pairings do not work at P.F. Chang's. With specialty foods where sharing of several dishes is encouraged, one wine does not work.

"When people are encouraged to choose a wine by flavor preference, they are more apt to be experimental and not necessarily order a wine that anchors a given flavor category. If steered by a server to a wine they don't like, we'll take the cost off the bill or substitute with their favorite wine. More than 35% of our total alcoholic beverage sales in dollars is wine, with more than 50 wines offered by the glass. That percentage is among the highest in the restaurant business.

"P.F. Chang's food speaks to the China in the restaurant name. Bistro references wine and describes the dining experience. WineInsight tools are a cornerstone around which we build P.F. Chang's wine program. I describe its influence on our business in one word: 'huge.'"

"Suddenly," Hanni contends, "it's all about relevance and putting the focus on sales and marketing. Training is handled. Traditional education can be built upon all the other pieces. What we now have is not a training program that says throw away all the books, but rather a platform bringing in a new operating system that slides underneath and supports the marketing and education that is working well for a small segment of the market."

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Dry sparkling wines

Domaine Chandon Sparkling Wine Blanc de Noirs Carneros NV	38.00
Roederer Estate Sparkling Wine L'Hermitage Brut Anderson Valley 1994	65.00
Moet et Chandon Champagne Brut Cuvee Dom Perignon Champagne AC 1993	200.00

Sweet white/blush/rosé wines

Beringer White Zinfandel California 2001	16.00
Kendall-Jackson Riesling Vintner's Reserve California 1999	19.00
Wegeler Riesling Spatlese Estate Mosel-Saar-Ruwer 1999	38.00
Justin Monmousseau Vouvray AC Demi-sec 1999	22.00
Bonny Doon Riesling Pacific Rim Dry American 1999	20.00

Dry light-intensity white/blush/rosé wines

Sutter Home Sauvignon Blanc California 2000	17.00
Leeuwin Estate Riesling Art Series Margaret River 1998	48.00
Santa Margherita Pinot Grigio Valdadige DOC 2001	32.00
Chartron et Trebuchet Pouilly-Fuisse AC Domaine de la Chapelle 1999	40.00

Dry medium-intensity white wines

Echelon Viognier California 1999	28.00
Woodbridge Chardonnay Twin Oaks California 1998	25.00
Jacob's Creek Chardonnay South Eastern Australia 2000	18.00
Kendall-Jackson Chardonnay Vintner's Reserve California 2000	28.00
Rosemount Estate Chardonnay Orange Vineyard New South Wales 1999	46.00
Zenato Chardonnay Veneto IGT 1997	38.00
Kumeu River Chardonnay Mate's Vineyard Kumeu River 1998	72.00

Dry full-intensity white wines

Acacia Chardonnay Carneros 1999	39.00
Beaulieu Vineyard Chardonnay Reserve Carneros 1997	48.00
Jean Marc Morey Chassagne-Montrachet Premier Cru	
Champs Gains Chassagne-Montrachet AC 1999	76.00
Franciscan Oakville Estate Chardonnay Cuvee Sauvage Napa Valley 1999	72.00
Whitcraft Chardonnay Bien Nacido Vineyard Santa Barbara County 1999	25.00
Au Bon Climat Chardonnay Reflect Nuits-Blanches Santa Maria Valley 1999	84.00

Dry light-intensity red wines

Robert Mondavi Coastal Pinot Noir Central Coast 1998	28.00
Starr Pinot Noir Rocky Hill Vineyard Willamette Valley 1999	65.00
Ecco Domani Sangiovese Toscana IGT 1999	24.00
Louis Latour Pommard AC 1999	76.00

Dry medium-intensity red wines

Banrock Station Shiraz South Eastern Australia 1999	15.00
Black Opal Cabernet Sauvignon/Merlot South Eastern Australia 1999	22.00
Forest Glen Cabernet Sauvignon California 1999	18.00
Blackstone Merlot Napa Valley 2000	39.00
Pagor Tempranillo Vino Tinto California 2000	21.00
Chateau Grand Pontet St.-Emilion Grand Cru Classe St.-Emilion AC 1998	59.00
Concha y Toro Merlot Casillero del Diablo Rapel Valley 1999	27.00

Dry full-intensity red wines

Livingston Moffett Syrah Mitchell Vineyard Napa Valley 1999	68.00
Marcelina Vineyards Cabernet Sauvignon Napa Valley 1998	56.00
Contratto Barbaresco DOCG Alberta 1996	92.00
Rosenblum Zinfandel Richard Sauret Vineyard Paso Robles 1999	35.00
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A MATTER OF TASTE

Smell and Memory

BY Doug Frost

In the midst of his military campaigns, Napoleon sent a letter to Empress Josephine. "I return to Paris tomorrow night," he wrote, "don't bathe." Perhaps there is pungent foreplay suggested by this odd request, but I would suggest another, more intuitive motive.

Napoleon understood what others might not. Smell is memory. Rather than have his beloved Empress smell like one of the trollops that often accompany marauding armies, Napoleon wanted Josephine to smell like herself. In so doing, she would offer herself to him exactly as he remembered her. And this memory, in time of war, was surely of comfort to him.

The sense of smell is vastly underrated in the modern human being. Routinely, the media depicts certain persons as "super-tasters," who are simplistically defined as people with many taste buds. The term "super-taster" suggests that the rest of us must be inferior to these mutated tasters.

The media's portrayal betrays a profound lack of understanding in matters of taste. The presence of a greater number of taste buds will only lower the threshold for detecting certain flavor components, such as the famous ones — sweet, sour, salt, bitter, and umami. But "taste," as most of us generally use the term, is not just a few flavors, but all the flavors and aromas received when we eat or drink something. The taste of

something maybe composed of thousands of flavors and aromas beyond the few flavors detected best by so-called super-tasters.

The sense of smell is a much more complex and multivalent source of information than the few sensations we receive from the mouth. As much as the media may find it convenient to focus upon people with lots of taste buds, a highly developed ability to differentiate smells is a better criterion for defining super-tasters than the number of taste buds they possess.

Are there in fact "super-smellers?" Helen Keller insisted that she could tell who had been in a room before her, even if it had been some hours since that person had left the room.

To the rest of us, this is a remarkable ability (or talent). Perhaps Helen Keller was uniquely gifted. Or perhaps she simply learned to pay attention to a sense the rest of us have come to ignore.

In a series of experiments in the 1980s, a group of British researchers looked into the familial sense of smell. A group of 25 mothers was asked to wear identical white t-shirts. The mothers brought along one infant each, mixed between males and females, who also wore identical white t-shirts.

After one day of wear, the t-shirts were collected into piles. The mothers were asked to identify by using their smell alone the shirts their babies had worn. The success rate was nearly 100% throughout the experiment.

The fathers were then asked to do the same. Their success rate was well over 80%.

It's not surprising that the fathers had a lower success rate. It is scientifically proven that most women have a

more sensitive sense of smell than men. This is both physiological and, I would argue, cultural.

Most interestingly, the fathers were more successful at finding their babies' t-shirts than they were at finding their wives' t-shirts. Could a survival mechanism, a species imperative, be at work here?

In later experiments, outsiders with no connection to the subjects in the experiments were brought in and asked to match the mothers and their infants, according to the smells from the t-shirts. More than 75% of the time, the women in this phase of the study were able to correctly select a t-shirt from the infants' pile and match it to the t-shirt belonging to its mother.

Once again, with a less sensitive sensory tool, men were not as successful. Yet even they matched mother and infant t-shirts more than half the time.

Are we aware of the information our sense of smell is receiving?

As a wine educator in the midwest, I've often heard people claim that they have no palate. "I can't smell anything," some say. "I'm not able to describe wine," add many others.

But unless someone has a rather gargantuan cold or suffers from a particularly acute case of anosmia (loss of smell), that person can detect a smell about as well as anyone else. In my experience as a teacher, educator, and restaurateur, I have become convinced that anyone is capable of tasting wine at a professional level. So why the insecurities?

A Gallo Winery study reported recently that "almost 50% of Canadians find wine intimidating, uncomfortable, and somewhat unknown." The numbers and attitudes in the U.S are hardly better. Perhaps that is why only 30% of the adult population is likely to have a glass of wine this week.

Instead of using common language to describe wines, we in the wine industry have used language that is exclusionary, replete with terminology that even we, as so-called experts, can hardly agree upon. ("Love the pH on this one, ripping acidity, don't you

Doug Frost, a writer and lecturer, has written two books: Uncorking Wine and On Wine, a Master Sommelier and Master of Wine Tells All.

think, Holmes? And the tannins are absolutely gargantuan, mouth-searing, and reminiscent of freshly laid asphalt.")

We offer confusing advice ("breathe for 32 minutes and 18 seconds, at barometric pressure of 22 or lower, and serve only with guinea fowl, freshly killed") and mock those who have followed our most recent advice. For instance, how many more times must I hear someone bash Chardonnay? Americans like Chardonnay, and after having become bored with it ourselves, we ridicule others for continuing to find it delicious.

Most great American restaurants refuse to serve White Zinfandel. Why? Is it because it's too popular? What does it say about our industry that we seek to embarrass and impugn those who drink our most popular wines?

If consumers choose to drink wines that we may find less than appetizing, are they wrong? I don't think so. People ought to be allowed to drink what they like, when they want, with whom they like, without being looked down upon by wine writers, wine salespeople, retail clerks or servers.

Isn't the fact that they are drinking wine of any type a good thing? Indeed, with all the intimidation that can accompany a wine purchase, it's probably amazing news that consumers continue to spend more money on wine with each passing year.

As easy as it might be to target snooty servers in this matter, we need to ask ourselves how these kids (most of them are younger than 25) got this attitude. Mostly, they get their information from salespeople, who are themselves fed from winery materials. Many of these press releases are written by agencies or employees with little grasp of a global context for wine. Understanding how, for instance, your Sauvignon Blanc compares to Sauvignon Blancs from other countries and regions might help a great deal.

In a common effort to differentiate wines, salespeople and winery materials will attempt to convince people that a certain wine is the best exam-

ple of its type, or that a particular wine or variety is the best match for a certain dish. But "best" is a very personal observation. I think that my local coffee roaster is the "best," but I don't presume that everyone else in America should agree. If everyone

has the capability to distinguish smells and if they have personal preferences for or against those smells, then each person is very likely to have differing ideas about which wine is the "best." What exclusionary industry attitudes do is discourage

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people from trusting their own subjective judgments in making that determination.

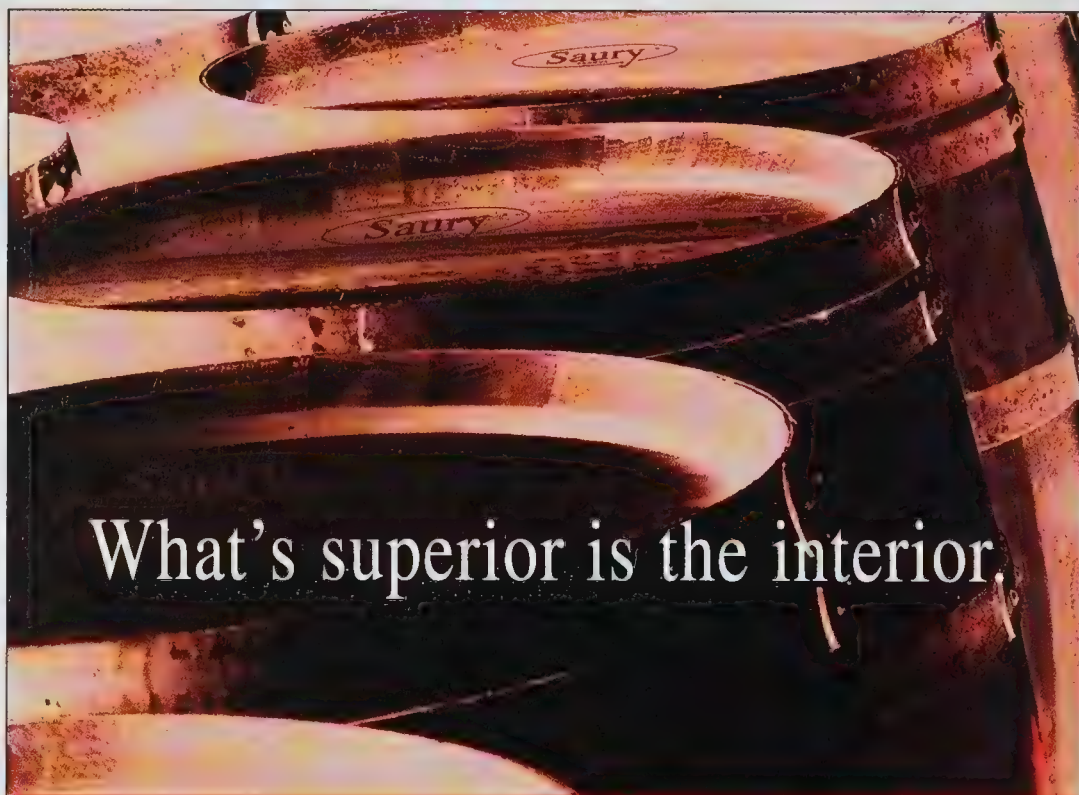
A brief survey of the top 100 wines of the *Wine Spectator*, for instance, will reveal that the majority of these heralded wines are red. Indeed, a lot of my snobbier friends love to quote the old canard that "the only prerequisite of a great wine is that it's red." The greater number of Robert Parker's top scores are given to red wines as well.

For my part, I often prefer to drink white wines. Am I simply unhip? Uneducated? Or perhaps it's that my grandfather, who had a fairly strong influence over me when I was a child, was a tee-totaler who taught me to love, taste, appreciate, and even differentiate between various kinds of apples. Now, presuming my sense of smell isn't completely wrong, I would

insist that almost all white wines contain a flavor of apples. Perhaps my preference in wines is based upon my personal experiences of smells. And, like Napoleon, I am most pleased by those smells that are familiar to me.

If we could stop being so judgmental about what people should drink, about the background and tools they bring to their wine drinking experience, we could allow them to find and enjoy the wines they like. Whether that wine scored 90 points or 60 points might be seen as yet another *personal* observation, and little more.

Ultimately, flavor preferences — and the individual's sense of smell they are greatly based upon — are personal and ought to be allowed to stay that way. Personally, I think that a well-bathed Josephine would be preferable to a more pungent empress, but as they say, there's no accounting for taste. ■



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Vineyard investment cycles and the next decade

BY John Bergman, David Ashcraft

Many factors have converged to create a climate of nervousness among vineyard investors in the past couple of years. However, investors tend to look at the glass as half-full, and we hasten to add this is not just based on a Pollyanna attitude. Rather, we use historical hindsight and trends to help us look forward. Based on this philosophy, one can argue that the ills we are experiencing today are not so different than they were just 10 years ago.

Three factors affect vineyard values

- Mother Nature,
- The economy,
- Management.

These are the same factors that predict the annual financial outcome of a vineyard. Today we are seeing a grape glut all over the world — including

California, which enjoys the finest management that money can buy. Despite Mother Nature giving her best, we see grapegrowers stressing to sell their grapes.

To be sure, one of the culprits is the general decline in the economy. But over-planted vineyard varieties also play a role. Five years ago there was a strong demand for wine grapes, so everyone began planting too much of a good thing. Now, we have too many wine grapes and not enough demand.

The eight-year cycle

This is not the first time the boom-bust cycle has happened in the last 100 years, and it will not be the last. This time it's the economy, the next time it may be Mother Nature causing problems. Whatever the cause, these cycles are going to occur every eight to 10 years.

People will now stop planting grapes for a while, demand will get stronger, and we will experience a grape shortage again. Then those same people who stopped planting will get back on the bandwagon, and in three to five years, we will have another glut. "The Beat Goes On."

Vineyard business cycles

To truly understand the value in vineyard-related property and its overall upward trend over the last 50 years (no matter what the economic conditions), one must examine the cause and effect of the varying business cycles over time. Figures I and II provide an example of how the business cycle ebbs and flows over time, yet maintains steady upward momentum.

Business cycles tend to run their course in about eight years, though they vary depending on the circumstances. In examining the current business cycle, we see that the early 1990s started out as a rough economic period not so different from today (Figure I). With constant negative economic news, the Gulf War, recession blues, and "the sky is falling" mentality running amok through the press, there appeared to be no where to run or hide.

Some people took advantage of these circumstances, bucking the trend and buying vineyard properties at depressed prices. They were rewarded by mid-decade when demand for wine started to increase along with grape prices. Increased vineyard property values followed.

Here comes the bandwagon

Seeing this incredible opportunity, everyone and his brother decided to plant grapevines (this tends to be a typical pattern throughout history). As we approached the year 2000, every-

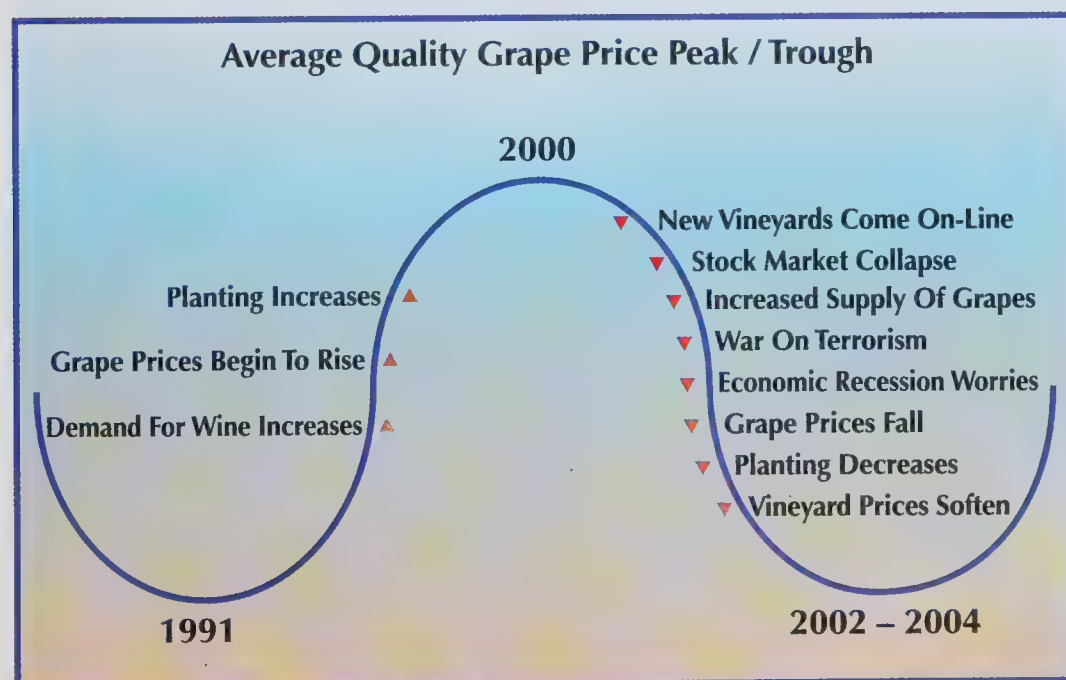


Figure I: In this anatomy of a typical wine industry business cycle, increased demand leads to higher prices and increased planting and eventual over-planting. Then, a grape glut and economic downturn lead to reduced grape prices and soft vineyard values, until eventually, demand increases and the cycle begins again.

INDUSTRY ECONOMICS

one was riding high on the technology/Internet/New Economy bubble, and vineyard values hit an all-time high. Let's step back and take a look at the factors that drove the market to its peak around 2000:

1. Increased demand for wine,
2. Increased grape prices,
3. Increased planting,
4. An exuberant economy

All of these factors contributed to the latest upswing in the vineyard business cycle.

The other shoe dropped

Since we've taken a look at the yin, let's now focus on the yang and why the market has softened. The current downward direction of the vineyard business cycle started with the meltdown in the New Economy, coupled with an oversupply of grapes and other significant events.

Since the bubble burst there has been incredible pressure on all types of assets, including vineyard land. This

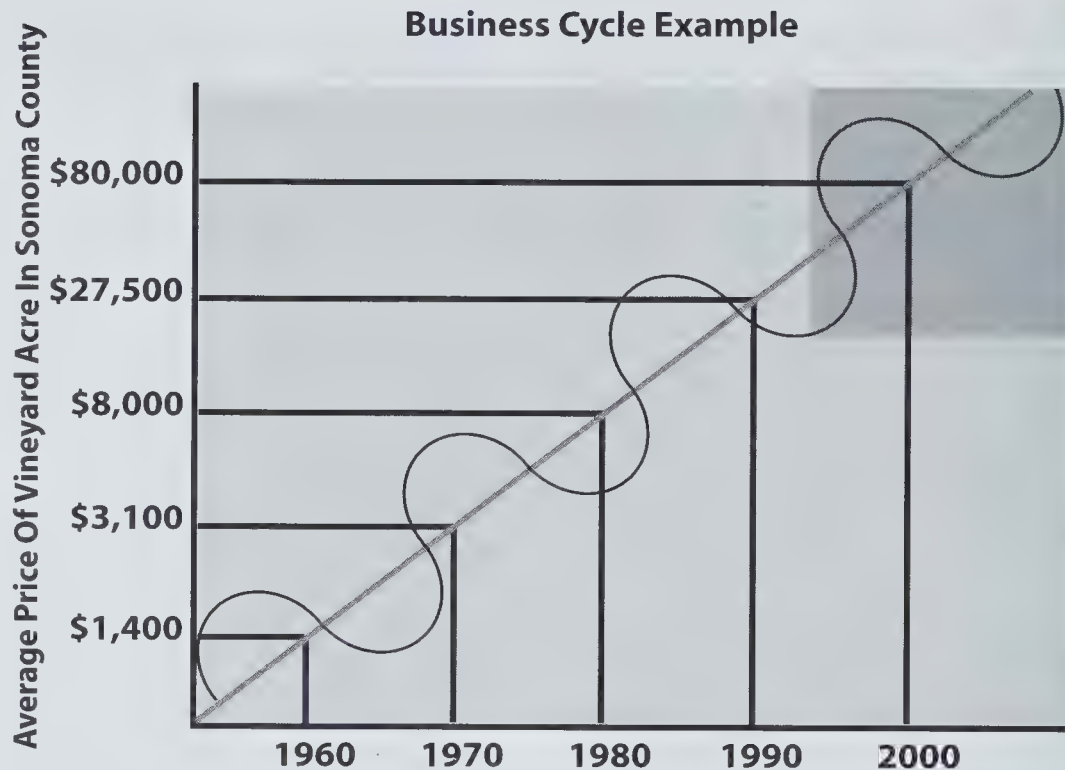


Figure II: Vineyard values over the last 50 years have consistently risen at least 100% every decade, though, as the wavy line illustrates, boom and bust markets have come and gone.



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particular downward trend in the business cycle saw many negative factors converging at once:

- The stock market meltdown,
- Oversupply of grapes due to planting in the mid- to late 1990s,
- The war on terrorism,

- Continued economic recession worries.

The result has been lower prices for average and below-average quality wine grapes, a reduction of planting new vineyards, and a softening in vineyard prices.

Snapshot

Growers stopped planting vineyards over the last three years to stop a potential grape glut.

- We are in a grape glut of certain varietals in the medium- to lower-priced wine categories.
- With demand for high quality grapes ever climbing, the need for more grapes will be felt sooner than later.
- The economy is appearing stronger, yet we are seeing conservative growth.
- We know that, at the end of every decade over the last 50 years, we have seen vineyard values jump from 100% to almost 300%.
- We are in the second year of this decade, with eight more years to go to get an over 100% return.
- Ten years ago in 1992, the most bankruptcies and foreclosures in the wine country occurred since Prohibition, yet the decade ended 123% higher in value in Napa County and 191% higher in Sonoma County.
- History doesn't lie. It is a trend line that we must all use to see the future.
- Get off your fear factor and buy now, or pay more money later.
- And, "The beat goes on."

Bottoms up!

As we near the bottom of yet another vineyard business cycle and prepare for the next spike up, investors will undoubtedly focus on high quality vineyards in locations such as Napa and Sonoma counties.

The higher end is stronger than ever

There are times when there are too many grapes, and other times when there are not enough grapes. However, there will never be enough "ultra-premium quality" grapes. This is because there is not enough premium land available to produce the ultra-premium grapes that service demand for high-end wine consumption.

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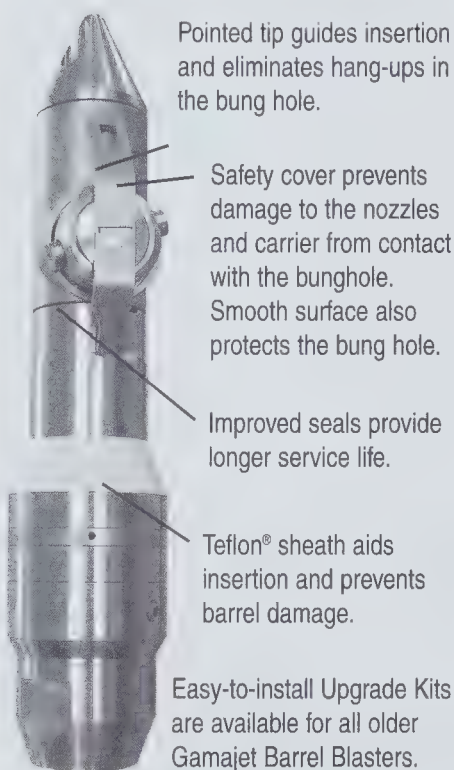
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normally enjoys a \$10 to \$20 bottle of wine daily is spending \$6 to \$15 today. The person who normally enjoys a \$25 to \$40 bottle of wine daily is drinking \$16 to \$30 bottles today — and it is most likely the same bottle of wine.

The \$50- to over \$100-per-bottle consumer is still standing strong in the market. In fact, very expensive wine sales have increased in demand throughout a soft wine sales market. As a result, high-end quality wine and premium vineyards are not affected in today's economy, especially if they have long-term grape purchase agreements.

If you grow quality, they will buy

Let's use recent trends in Chardonnay to show why quality is still king. Chardonnay happens to be the varietal that has taken the hardest beating recently. Reports have circulated that some \$2,000 per ton prices have fallen to under \$400 per ton in one year.

However, there are Chardonnay vineyards in Sonoma County today getting a minimum guarantee of at least \$3,000 per ton. These very high quality Chardonnay vineyards show that even with the biggest problem varietal — quality pays!

Grape purchase agreements are king

We are in the midst of a "buyer's market," with vineyard sales slower and harder to close. Even parties who want to buy a vineyard may have trouble closing the transaction due to hesitant lenders and financing.

In today's market, lenders are asking this magic question of every vineyard buyer: "Do you have a grape purchase agreement?" If the seller does not have a valid contract to sell his/her grapes, it is difficult to nearly impossible to get financing today. "Long-term grape contracts are king" — and they may be the

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Should I buy or should I sell?

I have always said that there is no time like the present for almost anything we do in life. If you package your property correctly, it will sell. If you are looking for an opportunity to get a better-than-average buy on a property, you can find it.

Ten years from now, it won't really matter anyway. According to statistics from the Sonoma County recorder's office, vineyard values over the last 50 years have risen more than 100% every decade, in some decades rocketing up nearly 300% (Figure II). Within each of these decades, there were up markets and down markets. Grapes were dropped on the ground some years and treated like gold in others, yet vineyard values kept on jumping.

There are no get-rich schemes in owning vineyard property, but most all are of them are very secure long-term investments.

Put your fears to rest and do something

Real estate in general is very predictable. If you hold it long enough you can't lose, and vineyard investments are no exceptions. There has never been a more secure investment in the world, especially in the wine country.

As wine demand goes up and down, we go through cycles, but the important thing is every time we bounce back from a down cycle, we are stronger than the prior peak. The scale goes way up, then it slips a little, then it goes way up again.

Looking ahead

If you want to sell, package your property well and put it on the market. If you want to buy, go out there and find that perfect opportunity. Understand that we all need education when buying vineyard properties, so we don't make a foolish economic move. However, trying to time the market

can often be a painful and frustrating experience. Again, there is no time like the present.

My last prediction in January of 2002, that we would see an economic turnaround by the end of the second quarter 2002, left me with an entire omelet on my face. However, I can say that I was not alone in that prediction. In fact I feel comfortable with some of the company who shared my beliefs.

Conclusion

Nevertheless, with this long downturn, every day that passes brings us one day closer to the turnaround. My suggestion is to start looking now; prices have been lowered on most all vineyard properties, and it's only a matter of time before the tide turns to a seller's market again. ■

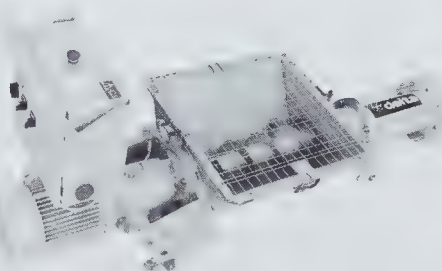
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EXPLORING NUANCES OF *Zinfandel*

BY Rhoda Stewart

“We are number one in Zinfandel sales in the U.S.,” says Joel Peterson, founder and winemaker for Ravenswood, Sonoma, CA. “One in every seven bottles of red Zinfandel purchased in the U.S. is Ravenswood.”

It is obvious that Peterson likes it that way, since Ravenswood, which produced 500,000 cases of Zinfandel in 2000 and 595,000 in 2001, is looking to expand that production over the next five years, primarily in its second-tier, county AVA bottlings.

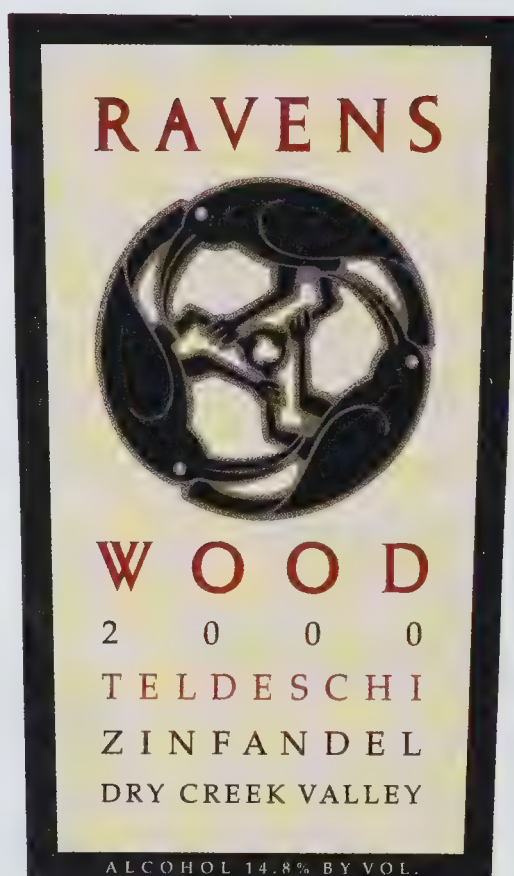
Ravenswood has three tiers of Zinfandel: Vintners Blend (430,000 cases annually), county AVA series (about 105,000 cases), and vineyard designates (about 60,000 cases).

“We hope to increase our county AVA production to about 150,000 cases over the next three to five years,” says Peterson. The county AVA tier consists of Ravenswood’s longstanding Sonoma County and Napa County blends, together with Mendocino, Lodi (added in 1998), and Amador (added in 1999).

Lodi is not strictly a county AVA, but it is included in that tier. “Lodi is a recognizable region, and to use ‘San Joaquin’ made no sense at all, since our grapes all come from the Lodi region,” explains Peterson. These county AVA wines sell for \$13 to \$16 (Amador, Lodi, and Mendocino) and \$18 to \$20 (Napa and Sonoma).

Why does Ravenswood plan on increasing production in this tier? How does Peterson expect to maintain the

Rhoda Stewart is author of A Zinfandel Odyssey, published by PWV Inc., and available from the PWV bookshelf, page 61.



style and quality that Ravenswood is known for?

Giving Zin its due

“Zinfandel is an important grape in California, and also is an especially unique wine here,” Peterson begins, “But it does not get enough exposure. It’s had too much White Zinfandel exposure.” For Peterson, White Zinfandel is a category of its own; “Red Zin and White Zin have about as much in common as jelly fish and striped bass.”

“Red Zinfandel is really a glorious thing. Part of my approach is to get the world to understand that and to be able to taste good examples of those grapes. It is good for the [Zinfandel] category as a whole. If I am successful with red

Zinfandel in any particular area, and people learn to like it and to recognize the name, it helps everybody. Zinfandel will no longer be an odd, obscure grape.”

Besides his global purpose of achieving greater exposure for Zinfandel in general, Peterson also hopes to get people to realize that it is not just a simple wine, that it has much complexity, with regional distinctions.

“The distinctive signature flavors of each region make these wines interesting to me,” Peterson explains. “I come from a wine-tasting and wine-drinking background. For me, differences are interesting.”

“I used to like to play the Burgundy game — to investigate: ‘What tiny little piece of soil did this wine come from?’ Burgundy does the regional thing in a much more fractionalized way than we do — with tiny individual vineyards being distinct. Perhaps they carry it to the extreme, but they believe in it, and it makes Burgundy interesting.”

“In my mind, people like complexity and interest as much as they like good flavors. All those things are part of what makes wine fun. Fun is a bigger topic than tchotchkes and t-shirts. Fun has intellectual elements as well,” he emphasizes.

“In California, these regions are broader brush strokes than the Burgundy or Bordeaux appellation concept. But the regional character of Zinfandel is still distinctive and interesting. The wines appeal to different people’s tastes. Yet they are all Zinfandels. There are some really interesting old vine vineyards in each of the regions, and when the grapes are handled correctly, they are capable of producing high quality wines.”

Peterson became particularly aware of the regional distinctiveness of Zinfandel some years ago when he had the opportunity to put together the first blend for the Zinfandel Advocates and Producers (ZAP). Each producer member contributed five gallons to this endeavor.

“I ended up with 60 five-gallon jugs staring me in the face,” he recalls. “I had to figure out how to blend those. That’s a tough call. Sure, I could have just put them all into a big vat, or I could have chosen to try to do something logical. I chose the logical approach.”

"I put a glass of each on the table, eliminated the wines with defects, and put the rest into blending groups based upon how they smelled and how they tasted. It was amazing how closely they grouped according to regions: Mendocino, Sonoma (with distinctly northern and southern groupings), Napa, Lodi, and Amador. Paso Robles was distinctive, but there was not enough for a group. The same for Contra Costa.

"It was clear to me that each region had a signature flavor. The regions are distinct in several ways — soil, climate, growing season, and crop levels that each region supports. All these factors develop unique regional flavors in the grapes, and they give you an opportunity to create clearly distinctive wines."

"Altogether, I decided to expand the county AVA tier because of three factors," explains Peterson: "I could get regional grapes at a more affordable price; each region had a signature flavor; and the grapes were of high quality.

"These three factors allow Ravenswood to make high quality wine at a certain level, using certain parameters and philosophical tenets that I have about winemaking."

Because he believes that vineyard designations should be reserved for special vineyards that produce wines representative of the particular place they come from, Peterson saw little opportunity to expand those bottlings. "We can do only so much in the vineyard designates program. Those wines represent from 500 cases or less per vineyard to about 2,000 cases," he explains. "Those special vineyards are finite."

In addition, competition for remaining old vine vineyards is fierce. Zinfandel is a tiny but popular category. And it is growing in the range of 7% to 15% per year — more than any other category. That makes it attractive

to vineyard owners and winemakers looking to meet surging demand.

Also, Peterson notes, everyone would like the mantle of making the best California wine, which he, of course, considers to be Zinfandel. The focus is on old vines, he notes, because of their reputation, because their crop level is self-regulated, and because they have been planted in the right places.

Given the limited quantity of old vines (vines that are greater than 50 years old and produce less than three to four tons per acre), there is fierce competition for their grapes in places like Sonoma

County. This has driven up the prices paid for Zinfandel — particularly in the small upper-end category.

"If you are going to pay \$3,500 to \$4,000 per ton for grapes, you need to get from \$30 to \$35 per bottle for the wine if you're going to stay in business," Peterson notes.

Vintners Blend limitations

Ravenswood's Vintners Blend line is still growing like wildfire, but it does not allow Peterson the opportunity to advance the consumer's understanding or appreciation for Zinfandel

as a wine with regional distinctiveness at an affordable price.

"Vintners Blend is a different animal from county bottlings. With Vintners Blend, we are trying to get the best wine to the market for the lowest price."

Vintners Blend always includes about 50% of wine made by Ravenswood from moderately priced grapes from Lodi and Mendocino, which forms a solid base wine. The other 50% is bulk wine. "We evaluate many wines; I pick the best, using the time-honored négociant tradition of Europe to pick the ones that I think will blend best with our base wine," Peterson says.



Joel Peterson, winemaker

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ZINFANDEL ODYSSEY

The county bottlings, however, focus on distinct regional characteristics. "The goal is to get the message to consumers that Zinfandel is a good wine, that it is distinctive, and that they should support it. This means that they must be able to afford it," Peterson continues. "At \$20 and less, you put a distinctive wine on people's dinner

tables. You can put wine into people's mouths and make it more of a daily beverage to have with food. That is very important, ultimately."

Cost of grapes

How will Ravenswood find enough affordable grapes in each county or

Regional flavors

According to Joel Peterson, in any given year, the following flavors characterize Zinfandel from these regions:

Mendocino: red raspberry, juicy (case quantity for 2000 vintage: 15,000)

Sonoma: black berry, cherry pie, peppery, spicy (2000 vintage: 30,000 cases)

Napa: red raspberry, cedary spice component (2000 vintage: 21,000 cases)

Lodi: blueberry, softer, not so aggressive in tannin, sometimes black tea (2000 vintage: 15,000 cases)

Amador: chocolate, cherry, dusty tannin, (because of) skin quality that is associated with high elevation sun intensity (2000 vintage: 15,000 cases)

region to increase production in this tier from 80,000 cases to 150,000 cases while maintaining quality at \$20 or less per bottle? Are there enough grapes of such quality to accomplish that goal?

"Oh, sure," replies Peterson. "If you look at the price of Napa Valley Zinfandel grapes, for example, it isn't all at Dickerson Vineyard prices (almost \$4,000 per ton). The price Ravenswood pays for Dickerson Vineyard grapes reflects what Ravenswood can get for a bottle of Dickerson Vineyard wine. Many Zinfandel grapes in Napa are available at less than Dickerson Vineyard prices.

"Since this is all one program, pricing also reflects a larger picture: how you create a balance between the bottle price and the cost of producing county AVA Zinfandels. One segment of the program helps to pay for another segment, so you can keep all things affordable. Where we pay less for the grapes, we can make a little more money off that bottle of wine, then we make a little less on the upper end bottles, and balance out the overall cost of the program.

"We can pay somewhat higher prices for grapes in Napa and Sonoma and still pay pretty good prices in Lodi, then have it all balance out, so we can charge an equitable price for each bottle of wine and make a profit.

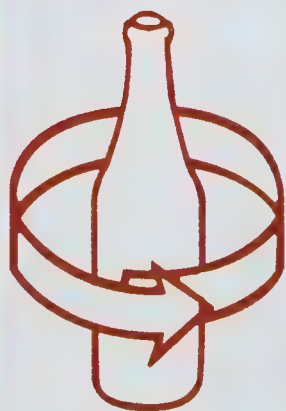
"Generally, we pay in the 70th to 80th percentile of California Department of Food & Agriculture Report (CDFA), so while we are paying upper-end prices, we are not paying top prices in each region."

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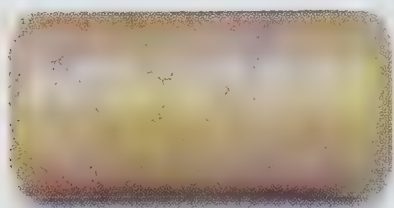
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ZINFANDEL ODYSSEY

Maintaining style and quality

"There are several ways we maintain consistent style and quality," explains Peterson. "We are very careful about compartmentalizing our three production tiers. We understand that each requires a different kind of care and different techniques.

"We are really like three wineries within one. The advantage is that we can do some quality triage. If we make a vineyard-designated wine, which is always fermented in small lots in three- to five-ton fermentors, and I don't like one of those lots, we can take that lot and use it in the

Sonoma blend. If it is more seriously flawed, we can use it in the Vintners Blend.

"A small amount of flawed wine — such as one with too much oak to stand alone — will not influence the overall quality of our 400,000 case production of Vintners Blend. In fact, it can add some positive character to the wine.

"So we can use those three tiers to maintain quality within any given tier. We can also look at each of those tiers as individual entities. We have very clear quality demarcations as to what goes into what program."

Peterson also attributes consistency in style and quality to a great staff. Ravenswood employs one winemaker, Peter Mathias, in addition to Peterson. "Peter makes things happen day-to-day," says Peterson. "I make the broader winemaking decisions."

There are two vineyard people, one for research and development, and one for wine grower relations. In the cellar are two assistant winemakers and one "pinch hitter." A lab director and a dedicated group of "cellar rats" round out the staff. Many of the staff have been with Ravenswood for many years.

Quality, however, starts in vineyards, so Ravenswood pays growers well. It maintains long-term, evergreen contracts with growers for a variable number of years. These are very secure contracts, with prices tied to some form of independent scale in the wine business. This eliminates need to haggle over prices annually. Peterson lets the market set prices.

Because Ravenswood has an established reputation for stability in production and style, the growers know what is expected of them.

"But in general," says Peterson, "we maintain wine quality for all counties by buying more grapes than we need from any particular place, and carefully selecting the best grapes. Vineyards are not always consistent year to year, so we hedge our bets and buy more grapes than we need. This is where our Vintners Blend program comes in handy — by absorbing the wines from the lesser quality grapes.

Sourcing from Lodi

Peterson answers questions about the quality of Lodi-sourced grapes by citing the particularities of the region. "There is a narrow band in the Lodi area (west of Lodi and little bit to the east, from Hwy 12/Kettleman Lane to the north) that

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gets the evening breezes off Suisun Bay, and it actually produces quite good quality grapes. These are old vines, head-trained, with crop levels lower than in other parts of San Joaquin Valley.

"We pay these growers enough to compensate for a smaller yield of higher quality grapes. And I work with the growers to get the quality I want. They will work with me on my requests, since we pay them a reasonable price. We use viticultural techniques practiced on the North Coast, which include crop-thinning and leaf-pulling."

Vineyard characteristics

Peterson prefers to purchase grapes from head-trained vineyards (80%); the rest are trellised. Irrigation is acceptable when done in accordance with grape quality. Some vineyards need irrigation to maintain grape quality, he asserts. Probably 60% to 70% of the vineyards Ravenswood buys from are non-irrigated.

Average age of vineyards is 65 to 85 years, with the youngest about 45 to 50 years. Grapes are all hand-picked. The yield varies, with the average about 3.5 tons per acre. Lodi is usually higher — five tons per acre — Sonoma and Napa, a bit less.

Achieving consistent regional flavors

"Consistency comes from the source and character of the regional vineyards and how they are managed," says Peterson. "Every vineyard and every lot is treated individually. Each vineyard/lot is crushed separately. By treating each vineyard individually, we are maximizing the flavors that the grapes give us, which is the source of the character of the vineyard. It has little to do with winemaking per se. We just make the wine in the best Ravenswood tradition, and vineyards give us the county distinction.

"The majority of wines are kept separate, evaluated separately, and we do our blending based on individual vineyard lots. This takes up winery space, of course, but what makes it successful is administrative skill. This production line requires some smart cellar workers who are capable of keeping track of many lots of wine."

If a particular vineyard has a lot more tannin, is extracting it quickly, and seems to be going out of balance, the wine is pulled off the skins sooner. If there is a beautiful fruit flavor from a particular vineyard developing and that flavor is

expanding, the wine would be allowed to continue to expand as long as it does not dry out. Peterson looks at the individual vineyards, rather than the region, since each vineyard has its own characteristics in any given year.

Decisions on barrel ageing and blending are also vital to the finished

product, and Peterson has well-developed methods on those processes.

"We like to get the wine into French oak barrels as soon as possible," he says. "We always use some new oak and some used oak. As soon as the wines are clear, stable, and dry, we take all the lots for each region, a single group at a time,

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eliminating the lots that don't meet our quality standards. Then we do the best blend we can put together in terms of our sales goals and put together the best wine for each region for the vineyards we have. This happens within three to four months after harvest, depending on my travel schedule. At that time, we re-

balance the oak, so that we have a lot we now designate by county."

The county blend wines stay in barrels, of which 30% to 45% are new French, for 16 to 18 months. Peterson believes that a layer of new French oak is critical. But he is definitely not a fan of over-oaked wines, even though they do well in competitions.

Though he acknowledges that wood is important to give a center support and finish and to enhance the fruit, he has reservations about its overuse.

"Like perfume," he explains by analogy, "too much is repulsive, but the right amount is quite lovely, is alluring. In our county series, it is important to get the right amount to emphasize regional flavors. The regional character, however, must shine through. It would be easy to make everything in the county series all taste the same by using 70% new oak, which would obliterate the subtleties of different regions."

Generally, Peterson maintains consistency in style and quality in the county bottlings by staying with Ravenswood's established winemaking traditions.

"We have always used a Healdsburg crusher, which is not a delicate crusher. It gives a fair amount of stem return, which adds a certain kind of character that you don't get from other destemmer/crushers. To that end, we went out and bought an old Healdsburg crusher for our new facility. We also have a new Diemme destemmer/crusher, so we can use either, depending on our history with the vineyards and what each vineyard needs. The idea is to keep the Ravenswood style going."

Other methods Ravenswood traditionally uses include:

- Native yeast for all fermentations, including Vintners Blend
- Warm fermentations — 85° to 90°F
- Open-top stainless steel fermentors, equipped with automated punch-down devices
- Hand-punching for vineyard designates
- French oak
- Egg-white fining only for excessive tannins.

Marketing and sales goals

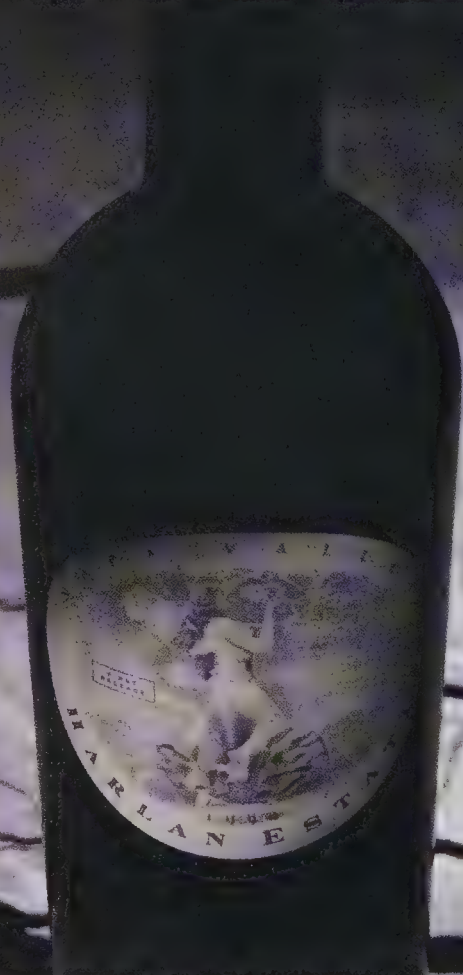
"Sometimes we will have a secondary lot, that could potentially go into the county blend, so we have some flexibility in terms of our sales goals," Peterson says. "That is, we think about what we might be able to sell."

"Quality is always our first consideration. If I can give someone a wine for \$20 that tastes like it should cost \$25 or \$30, then I have done my job. If I give them a wine for \$20 that cost me \$30 to make, then I am losing my shirt and haven't done my job."

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Bottles in the county series carry the traditional Ravenswood label, which shows just the county name in red, plus the vintage, nothing more.

Peterson cites his main marketing problem as getting the "gatekeepers" in the industry to accept a five-product line of Zinfandels. "I don't expect anyone to take all five, but it would be nice if they were to take two or three. This is our challenge in education," he says. "Our consumers have accepted this line, supporting two or three. Now we have to convince the restaurant buyers and the brokers and distributors that it is in their interest to support the entire program."

Conclusion

"Ravenswood started with Zinfandel in 1976, and we've continued with it ever since," Peterson states. "We've been an active supporter and participant in ZAP and the Zinfandel story. With Ravenswood, there is a 'there' there. Ravenswood is a real winery with real people, not just a made-up, boardroom brand."

"Many of the people here today have been involved from the very beginning. Ravenswood also has a tight philosophical approach to winemaking. Consumers can be sure they will get a product that can be identified as Ravenswood, and that it will be a wine they will be happy to drink."

"We work hard to keep the value-to-price ratio relatively high. For example, our Vintners Blend is available in Costco or Cost Plus for about \$7.99. But it will fare well if you put it in a tasting of wines costing \$15. It will end up near the top. That is the value, and that is our goal: to offer a traditionally-made wine that has sound principles, that tastes good, that the consumer can afford."

Ultimately, Ravenswood's style is consistent because Joel Peterson is still very much an on-the-job winemaker. When asked whether he still plays a central role in winemaking decisions, he replies, "Yes, absolutely. I am the one who makes all those determinations. That is what I do! I cannot imagine what I would do if I didn't do this." ■



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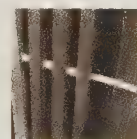
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ALTERNATIVES

Malbec sparkles as Andean vineyard jewel

BY Eleanor & Ray Heald
Contributing Editors

Producing 80% of Argentina's wine, the Mendoza region enjoys an unrivaled affinity with Malbec. In the southern hemisphere, Malbec's luster is bright; it is the jewel of Argentina's vineyards. In the mid-19th century, settlers from southwestern France brought Malbec to Mendoza, which lies at the edge of the Cuyo desert, literally along the eastern spine of the Andes Mountains.

Frosts in the Bordeaux region of France in 1956 destroyed Malbec in Left Bank vineyards. The majority of these vineyards were never replanted to the variety, since it was susceptible to *coulure* (shatter), and in general, its high vigor produced a lighter, more rustic version of Merlot.

Malbec fared better on the Right Bank. Plantings of Malbec (or Cot, as it is known locally) are found especially in Bourg and Blaye. Further south in France, Malbec stands on its own in the wines of Cahors, which are weighty with dark color but lack finesse from all but the top producers.

Malbec from both Cahors and Mendoza have abundant and often powerful black and jammy fruit flavors. The main difference is tannins. Frequently coarse and rustic in the wines of Cahors, those from Mendoza are supple, smooth, and silky.

Carlos Tizio-Mayer (Bodega Norton) believes that, because Malbec was brought to Argentina before phylloxera, the vines from which today's Malbec descended are different clonal selections with smaller bunches and smaller berries than those in Cahors.

Mendoza overview

The Andes Mountains reach their highest altitude with the Aconcagua Mountain in Mendoza, which determines the nature of winegrowing there, says José Alberto Zuccardi, managing director of Familia Zuccardi (Santa Julia wines).

"Soils were formed by alluvial erosion of the mountains," he says. "Weather patterns governed by the Andes provide only 170mm to 200mm rainfall annually. Since 96.5% of



Map, Mendoza, Our Terroir by Laura Catera.

The influence of the Andes Mountains dominates winegrowing in Argentina's Mendoza province.

Mendoza's surface is desert, irrigation water from Andean snowmelt allows grapegrowing."

The Mendoza region is different from most grapegrowing areas because there is no rainfall during winter. "This is an advantage in controlling vigor," Tizio-Mayer explains, "because it allows irrigation control from bud break to veraison."

Tizio-Mayer adds that the soils, under one meter deep, contain less than 1% organic matter. Because the climate is dry, it's "friendly farming," with little need to spray against fungal diseases, such as downy or powdery mildew. Insect populations are low, and insecticides are not required.

Vineyards cover a series of oases near the rivers carrying snowmelt down from the Andes. Supplemental water is provided by wells that reach the deepest aquifers. Furrow irrigation is still used, utilizing a system of canals built in the 16th century by the Tehuelche Indians and improved later by the Incas and Spanish.

A long growing season of 120 to 150 days from flowering to harvest heightens the potential to ripen grapes to physiological maturity.

"In general," Zuccardi says, "crops are controlled by standard winter pruning, summer shoot-pruning, bunch-thinning, and deficit irrigation during specific periods of the growing season."

Pedro Marchevsky (Bodega Catena Zapata) notes that a new generation of Argentine winegrowers, such as vintner Nicolas Catena Zapata, has revolutionized viticulture in Mendoza. "Close vineyard spacing, vertical shoot positioning (VSP) for better-balanced canopies, and low yields are becoming the norm for today's quality producers," he says.

Mendoza sub-regions

Citing Malbec from the Mendoza region at large does not explain the differences discovered in the variety from the area's multiple sub-regions and microclimates. The differing ecology and dissimilar soils, altitudes, and weather patterns are better distinguished as five wine regions surrounding principal smaller towns.



Hail nets covering VSP trellised Malbec at Bodega Norton, Mendoza, Argentina.

Northeast of the city of Mendoza, Las Heras and Lavalle have the lowest altitude of 700 meters with 2,220 degree days. Although soils are shallow, Malbec from this sub-region tends to be upfront fruity and early maturing.

Malbec is well adapted to the alluvial and sandy-loam soils near Santa Rosa in the east. Vineyard altitudes range from 640m to 720m, and there are 2,189 degree days. Depending on viticultural practices, wines of varying concentrations are made.

Maipu and Luján de Cuyo are in the Mendoza River Valley (central region), considered *primera zona* or "top area." Topography varies widely as vineyard altitudes change from about 750m to 1,060m and degree days from 2,000 to a high of 2,160. These differences, along with multiple soil types ranging from loam and clay-loam to gravel with significant mineral content, give Malbec a broad range of personalities.

Malbec grown at higher elevations yields densely-colored, concentrated wines with a powerful and rich fruit presence. Lighter color and less intense



Hail nets covering retrofitted parral system Malbec vines at Bodega Norton, Mendoza, Argentina. (Photos by Ray Heald)

CONTRIBUTING PRODUCERS:

Bob Pepi, Consulting Winemaker
Valentin Bianchi
Principal vineyards
in San Rafael

Jeffrey Stambor,
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Carlos Tizio-Mayer,
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Randle Johnson,
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Bodega Norton
Principal vineyards in
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José Alberto Zuccardi,
Managing Director
Familia Zuccardi
(Santa Julia wines)
Principal vineyards in
Maipu and Santa Rosa

VARIETAL REVIEW

Malbec comes from vineyards at lower elevations.

Tupungato is in the Uco Valley, the sub-region of highest altitude, between 900m and 1,400m. With alluvial soils, an average of only 1,776 degree days, and an average 15°C (27°F) temperature differential between nighttime lows and daytime highs, Malbec develops good structure and color.

San Rafael in the south has sandy soils that are low in both organic matter and nitrogen. With 1,980 degree days and altitudes between 450m and 800m, Malbec of varying character comes from the region. Vineyards with top viticultural practices are producing some very good wines.

What's best?

"There is no one best place to grow Malbec in Mendoza," says Jeffrey Stambor (Bodega Navarro Correas). "Vintners have their choice spots, but

the most complete wines are blends from different areas."

Bob Pepi (Valentin Bianchi) and Marchevsky disagree. "The best Malbecs I've made," says Pepi, "have not yet been released. They are single-vineyard wines."

From the 2002 vintage, Marchevsky reports that Bodega Catena Zapata will release a series of vineyard-designated Malbec bottlings.

Randle Johnson (Bodega Norton) relates "best" to yields and old-vine character. Older vines that have shorter shoots and smaller yields are producing the best Malbec. He finds this in Lunlunta (central region of the Mendoza River Valley) from original 80- to 100-year-old Italian-style, closely spaced meter-by-meter plantings.

"The problem with Argentina," Pepi notes, "is that it hasn't fully come to grips with the idea that growers should be paid more for

FOREIGN INVESTMENT VITAL

Argentina ranks as the fifth largest wine-producing country behind France, Italy, Spain, and the U.S. Wine exports represent more than \$140 million to Argentina's debilitated economy, with the U.S. importing 35%.

Over the last 10 years, there have been more improvements in wine-growing than in the century preceding. Traditional family-owned wineries have welcomed investor dollars from Chile, the U.S., France, Portugal, the U.K., Spain, Japan, and Austria. Investments paved the way for technological improvements in both vineyard and winery, export-worthy quality standards, and international marketing and distribution prowess.

Despite Argentina's currently bankrupt economy, such investment continues. Compagnie Viticole Edmond de Rothschild has formed a joint venture with French financier and Rothschild family friend Laurent Dassault. Both partners are planting 250 acres each, on land they acquired south of the city of Mendoza. French clonal selections of Malbec are being planted along with Cabernet Sauvignon, Merlot, and Syrah.

delivering higher quality fruit." He also believes some parts of Tupungato are too cool — he prefers La Consulta in the Uco Valley for top-quality Malbec as well as the San Rafael area.

What is an appropriate crop load? Johnson replies that there is no simple answer. "You can look at a vineyard block and judge that it's bearing 100 quintales per hectare (4.44 tons/acre) and that's a reasonable yield. Yet vineyard blocks are variable with up to 15% missing vines. It may work out to 100 quintales per hectare of producing vines, but it could be 120 or more. Unfortunately, it's a vine-by-vine balance issue, and it requires a core of experienced pruners. Because of layering to replace missed vines, it's also difficult to calculate average vine age."

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These factors lead Pepi to add, "This may be why older vineyards produce the best Malbec. Not necessarily because high-quality fruit can't come from a young vineyard, planted with newer viticultural practices, but because an older vineyard regulates itself better. From older vineyards, an appropriate crop load is 2 to 3 tons per acre (TPA) and on a VSP trellis, 4.5 to 6 TPA for good quality."

Johnson believes the same quality parameters that are applied to California viticulture can be used with Malbec in Mendoza. Top producers are doing this, and others will need to do it eventually, especially if they plan to export wine.

Clones and selections

Stambor confirms that there are several Malbec selections in Mendoza. Many are field selections, and are not necessarily distinct. In existing vineyards, the biggest problem is incurred when there are missing vines. Since vines are own-rooted, a new vine is layered from a neighboring plant shoot, which results in a block with vines of varying ages.

There are also Malbec clones, Johnson explains. The earliest pre-phyllloxera budwood came to Argentina from France. Over time, it was noticed that some vines did better than others, and cuttings were made. But a formal, numbered, structured system has never been developed.

In 1994, in the Uxmal vineyard in Agrelo surrounding Bodega Catena Zapata, Marchevsky planted 113 clonal selections (one selection per row) of Malbec from around the globe. The experimental objective was to learn the clonal selections best suited to the area for further planting.

Wine was made from 15 selections that provided the best fruit. From these clonal selection trials, the five best selections with the smallest berries, most concentrated fruit, even ripening, and most mature tannin profile were chosen to plant in Catena vineyards. Plantings were made in different areas with varied soil composition and altitude.

The vintage 2002 Catena Zapata Malbec contains wine from the fourth

crop of the five clonal selection plantings.

"Even in California," Stambor maintains, "it's widely blurred as to what's distinct clonal material and what are field selections with specific properties based on site. There are some new generation ENTAV-INRA Malbec clones available, but the local Mendoza wisdom suggests not planting them because they have huge clusters with big, fat berries that ripen too early, and do not yield true Mendoza characters."

Spreading disease through *masal* selection of vines with low vigor and smaller berry size is not a concern among growers. High vigor out competes root knot nematodes, or leaf roll considerations. Particularly the latter, because the crop can be ripened independent of leaf roll presence.

"One of the problems in California," says Pepi, "is that vines are grafted. Incompatibility is always a consideration."

Tizio-Mayer admits that Argentina does have phylloxera but it is not a problem. "We don't know why," he reports, "but we have some ideas. Soils are sandy-loam, and phylloxera takes to heavy soils. It could also be the climate, which is dry in winter. Or perhaps Argentina has a different strain that is not as aggressive."

Historically, the thinking in Argentina has been that when *vinifera* is on its own roots and gets plenty of water, the vine is vigorous enough to out compete most soil-borne pests, including phylloxera. Tizio-Mayer, a graduate of the University of California, Davis, and former researcher in viticulture of the National Institute of Agronomic Technology in Mendoza, dismisses this theory.

Johnson notes that Argentine vineyards, on the modern viticultural track of growing smaller vines on a VSP trellis, are buying modern rootstocks and clones from France. Plant

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material certified in France is allowed to be planted without recertification in Argentina. Vines will need to be planted with rootstock, and vigor will be controlled through deficit irrigation practices.

"There's no doubt," Johnson adds, "that one of the main themes running

throughout the Argentine wine industry now is money. With the exception of well-capitalized operations, equipment that costs a lot of money is out of the question."

Despite that, Pepi notes that in Argentina, the benefits of flood irrigation are being downplayed because a

vine can be better controlled with rootstock and drip irrigation.

Current belief is that *riparia*-based rootstocks work best. All new Bordeaux clonal plantings at Valentin Bianchi over the last four to five years have been on 3309 and 101-14. In fact in 2002, the best Malbec was from a young vineyard planted with Bordeaux clones on 3309. To date, no wine has been made from these plantings.

Hail damage

Factoring in summer weather incidents (such as hail storms) from vintage to vintage, Johnson predicts there will not be many successful, long-term, single-vineyard wines. "If a grower were to concentrate on a single vineyard site for a wine, in one or two years out of seven, there would be no crop or a partial crop," he contends. "In another two out of seven, the fruit would be standard. Two or three out of seven may be great, but won't sustain a grower or winery in business, at the top end."

Vines are protected from hail damage by careful netting. A zigzag net formation covers the *parral* trellis system (retrofitted pergola from Italy with a high fruit zone) in many vulnerable vineyards. Openings in the net design allow hail to fall through to the ground (see photos on page 45).

VSP-trellised vines have netting that sandwiches the vines to protect them from hail. The netting is pinched not only at the top, so hail stones cannot enter the canopy, but also at the bottom, since wind drives the stones down. They then bounce up from the ground to damage the fruit zone.

At Norton, Tizio-Mayer has modified the *parral* (overhead trellis-training system) by dividing the canopy horizontally in vineyards prone to frost. In tractor rows that are 3m wide, the cordon has been divided to create two cordons, 1.5m apart. "We get good sunlight penetration at the cluster level," Tizio-Mayer explains, "and a microclimate situation similar to VSP."

"In a frost incident, having a fruiting wire two meters above ground results in a temperature gain of 1.5°C to

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Hopland, Mendocino

170 acres total with 55 acres planted to vineyard, 2 separate ponds, energy efficient home, state of the art workshop and rustic guest cottage. Asking \$2,950,000

Valley of the Moon, Santa Rosa

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Sonoma Coast Appellation, Petaluma

62.16 acres total with 10 acres planted to vineyard and an additional 25 - 30 acres plantable. The current owner will guarantee purchase of the grapes for his own winery. This property is located just 45 minutes from San Francisco and has views of the hills all the way to San Francisco Bay with an outstanding building site. Asking \$2,950,000

Green Valley Appellation, Forestville

40 +/- acres with two separate parcels and 7+ acres of vineyard. The architecture is of the finest craftsmanship as evidenced by the multitude of stone work. There is a beautiful guest quarters, separate family / game room and artists studio, a two-tier swimming pool with water falls and hot tub, stone patio and stone wine cellar etc... Too much to mention. Asking \$7,950,000

Green Valley Appellation, Sebastopol

88 +/- acres total, 4 parcels with 15.35 planted to premium vineyard, 25 acres plantable, 8,400 sq/ft residence with 360 degree views of vineyards, private lake and mountains, swimming pool, museum, 6 fireplaces and gourmet kitchen. Two rental homes. Also complete with 24-acre foot pond & 45-acre foot lake used for water skiing with computerized boats. There is a 2,500 sq/ft green house for the green thumb, 4,000 sq/ft open barn. All this and more just minutes from Santa Rosa, Bodega Bay, and Occidental. Asking \$9,500,000

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Flavors and phenolics

Johnson uses the same parameters for picking in Mendoza as he does at the Hess Collection Winery (Napa, CA). "I want good, succulent flavors and mature seed color," he says. "I pinch the berry and see how quickly red coloration is released from the skin."

Pepi, who is also winemaker at Andretti Vineyard (Napa, CA) agrees. "With Malbec, I want to get not only ripe flavors but the spice elements of the variety. I don't want green, astringent tannins, but rather those that are round."

Stambor, who is also a Beaulieu Vineyards (Rutherford, CA) winemaker, suggests that "to get ripe flavors with Malbec, there's a frame shift because pH can be 4.0 and higher. Acid correction during fermentation is routine."

Stambor prefers to correct the acid once and as early as possible, rather than correcting during fermentation and again before and then after malolactic fermentation (MLF), although subsequent additions are frequently necessary.

Because Johnson is also working on a higher-altitude project in Argentina (outside the Mendoza region) for Donald Hess, he has another perspective. If grapes are picked at 0.50 TA and 0.60 TA, he won't make a full one-gram-per-liter addition right off the bat. He adds 0.5 grams per liter and then, because fermentations are much longer (20 days rather than the usual nine), TA is checked again mid-fermentation and corrected then if necessary.

"As California winemakers," Johnson adds, "we're no longer acid freaks. The highest acid I want during fermentation is 0.60 TA, and I do pick some fruit at 0.45 TA to get the ripest flavors. Remember, I'm talking about Region IV macroclimate. In Argentina, Malbec is grown in a warm, elevated desert."

Even though Michel Rolland (renowned enologist with a laboratory in Pomerol, France) has established a lab in Mendoza, potassium ion (K^+) levels are not routinely monitored because it is expensive.

Phenolics (tannin and astringency) are not a problem with

Malbec. "This is the beauty of Malbec in Argentina," Pepi adds. "Color extraction is excellent with soft, silky tannins."

Why they like it

California winemakers Johnson, Pepi, and Stambor say they like

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Malbec, which is "the real deal" in Mendoza.

"There Malbec has, as Bob (Pepi) says, intense color and a round, rich tannin profile," explains Johnson. "It also produces good mid-palate, highly-textured wines. The secret ingredient or the element that perks Malbec above the other Bordeaux varieties is the clove, spice, and black pepper qualities that give bounce to the aroma. Once you smell Malbec, you say this is truly different. It's a standout."

To these characters Stambor adds a "uniqueness that speaks about the place from which it originates. For whatever reason, Malbec has found a home in Argentina and expresses a synergy with the climate and soils. It's fruity, but not just fruity; it's juicy in both aroma and flavor. That's the way I describe Zinfandel that I like. Juicy with a different flavor than any other variety."

Pepi echos these remarks and adds, "If Argentine wineries are wise, they will ride Malbec like the Australians rode Shiraz. It's the variety they do better than anyone else in the world."

"I also use Malbec for blending like I use Cabernet Sauvignon in California. Rarely do I make a Napa Valley Merlot without using Cabernet Sauvignon as the blending varietal. I do not make Merlot or Cabernet Sauvignon in Argentina without using some portion of Malbec."

"Malbec helps all red varieties with which it's blended. I bottle the best Malbec from the best years as a single varietal. Even in the Napa Valley, how many great Cabernet vineyards are there? Truthfully, not that many, from which I'd make a vineyard-designated wine."

Johnson agrees. "Malbec may not be that complex on its own, or a long-term ager like Cabernet Sauvignon, yet it can enhance a blend because of

the tannin profile. It's round and rich with fine-grain tannins that offer an unusual level of finesse. That's the reason it enhances as a blending varietal."

"For all the reasons we've just talked about, we like Malbec at Hess Collection and are planting more. As the first Bordeaux variety we pick on Mt. Veeder, it's viewed as a mid-season variety."

Pepi reports that when Malbec is planted in the same Argentine area as Cabernet Sauvignon, it is picked either at the same time or just a few days later.

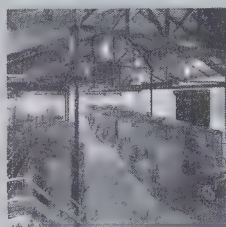
Stambor adds that Bodega Navarro Correas typically ends harvest with Malbec.

Juice to wine

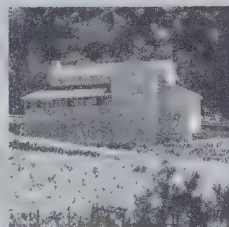
Given machinery limitations, every attempt is made by producers to keep the berries as whole as possible and not beat up the fruit.

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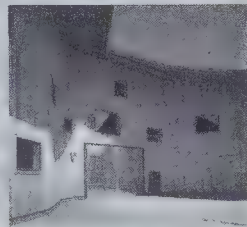
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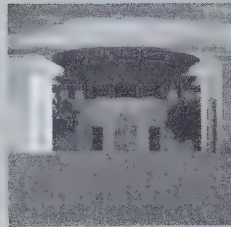
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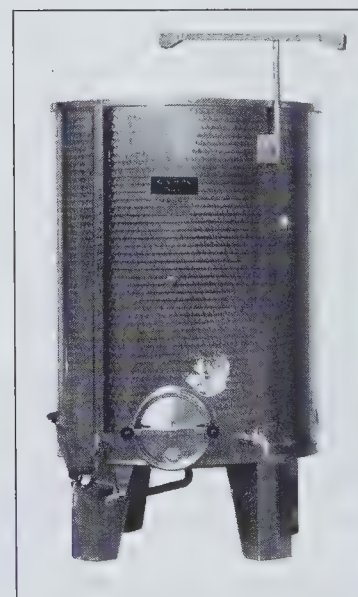
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Many Argentine wineries do not inoculate primary fermentation which completes without being sluggish. Yet Johnson, Pepi, and Stambor use cultured yeast and prefer Lalvin D-254. Johnson maintains that, as he gets more fruit to work with, he will be willing to expand his horizons and conduct some uninoculated fermentation experiments.

"Right now, we have to focus on the basics," Johnson continues. "We cannot go too stratospheric. Whatever may be delegated to an experiment, could end up unused for a commercial bottling."

Some aspects of Malbec remind Stambor of Pinot Noir. Skins are quite thin, and if he had the ability to conduct prefermentation maceration experiments, he would. If a prefermentation maceration is done, the winery must have the equipment to dial the fermentor temperature up quickly to get fermentation started. If not, the entire fermentation will complete and

the peak temperature will not go above 70°F.

Winemakers agree that when Malbec is physiologically mature, the winemaker's job is easy. Pepi cites the positives as terrific extraction, 7- to 10-day fermentation, and little reason for extended maceration.

They also agree that a small fraction or all of a light press wine (1.2 bar) is beneficial.

Aeration

California winemakers apply the same racking parameters to Malbec as they do to Bordeaux reds in California. Early on, the wines get as much air as possible with aerated pumpovers at least once per day. To preserve fruit, rackings are either low-air or non-aerative with nitrogen sparging.

Sanitation

With the exception of the high-quality wineries, sanitation in Argentine

wineries is an issue because hot water is expensive. "Chemicals," Johnson says, "are preferred for cleaning. Most of the time, that works for floors. But instead of hot water, chemicals are also used to sanitize a bottling line. Ozone is almost virtually unknown as a sanitizer for barrels, wooden casks, or bottling lines."

He notes that Hess has an ozone machine that he'd like to ship to Argentina but the duty is a prohibitive 41%.

Problems with *Brettanomyces* are minimal in the newest wineries and in well-maintained older facilities.

Cooperage choices

Currently, Johnson uses 100% French oak. Pepi likes to age top-of-the-line Malbec in 10% to 15% American oak. For the mid-price category, Pepi uses 30% to 40%. His preference is thin stave because he does not leave Malbec in barrel for more than 10

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VARIETAL REVIEW

to 12 months. "Past that," Pepi says, "the juicy character that Jeffrey (Stambor) talked about begins to drop. It also gives a rough edge to the silky tannins, the hedonistic mark of Malbec."

As much as Pepi dislikes putting a Bordeaux blend together just before bottling, it's a necessity in Argentina because the Cabernet Sauvignon fraction is barrel aged for 16 to 18 months.

Because Stambor prefers American oak for Zinfandel, he's leaning toward it for Malbec, but utilizing French oak as well. Over two years of barrel trials, he has come to prefer export, thick stave barrels. About 10% to 15% of the cooperage is new. His rule of thumb is to use a lower percentage of new oak for Malbec than he does for a comparable quality level of Napa Valley Cabernet Sauvignon.

Stambor believes barrel ageing for more than a year alters the character of Argentine Malbec. Once bottled, longer barrel-aged Malbec gets old well before its time, and loses its distinctive fruit character.

"This is a big point," Johnson contends. "Historically in North Coast California we're barrel ageing Bordeaux reds for 15 to 24 months. For Malbec in Argentina, it's eight, 10, or a maximum of 12 months."

Bottom line

Current economic woes in Argentina will most likely keep wine pricing stable. If interest in Malbec keeps rising, more consumers may get to know it and increase the demand.

"We want to believe this," Stambor notes. "There is producer resistance to discount pricing. What they do not want to do is set themselves up with global expectations of

cheap wines from Argentina. If a winery establishes a reputation as a price per quality producer only, it can't lower prices even in tough economic times."

Valentin Bianchi's company line is not to drop prices. Extra revenue will be put into marketing. "I believe what will happen," Pepi conjectures, "is similar to what's happening to domestic wine pricing. Fighting varietals in the \$4 to \$9 range will see price reductions."

"Fortunately for Argentina and in large measure due to Catena, they are selling wines in the U.S. in the \$20 to \$60 price bracket. These wines with a 500- to 2,000-case production compete favorably with top wines made anywhere in the world."

From vineyard to bottle, the international market is driving all the improvements in Argentina's Malbec and its style. ■

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LAURENCE FERAR & ASSOCIATES, INC.

Established in 1983, Laurence Ferar & Associates is committed to quality architectural and landscape design with a common-sense approach to meeting clients' needs. To research winery design, Laurence Ferar visited over 100 facilities in the U.S., France, and Italy, talking with winemakers about specific challenges and unique solutions.

Like winemaking, winery design is part art, part science, and part economics. Just as *terroir* lends character to wine, the unique sense of place inherent to each site is central to Ferar's approach. Principles of sustainable development and energy-efficient design are employed to complement each client's stewardship of the land.

The firm has broad experience in gravity-flow facilities, including Adelshiem Vineyard, Lemelson Vineyard, and Pepper Bridge Vineyard. Other recent projects in Washington and Oregon include expansion of Lange Winery, master planning for Soter Vineyards, a new production building and barrel cellar for Leonetti Cellar, and new barrel storage facilities for Red Mountain Vineyards / Sandhill Winery, and Hedges Cellars.

Professional services include: site evaluation, master planning, integrated building and garden design, governmental approval assistance, historic restoration of structures and gardens. The firm encourages inquiries for small or large projects.

Ferar & Associates has the expertise to carry out demanding assignments and shares your enthusiasm for wine-making success.

For more information contact:

Laurence Ferar and Associates, Inc.

1016 SW Clay St., Portland, OR 97201

tel: 503/241-5447; fax: 503/241 0826

JOSEPH W. CIATTI CO. LLC

The Joseph W. Ciatti Company LLC is the wine industry's oldest, largest, and most comprehensive grape and bulk wine brokerage in the U.S. and internationally. Annual sales are over 110 million gallons (416 million liters).

The company offers a full array of wine brokerage services, including grape contracts; grape processing contracts; complete negotiation of bulk wine purchasing and sales; tasting, blending, and finishing wines by on-staff enologists; objective information, including comprehensive long-term market analysis; evaluation of inventory quality and current market values; and locating unlabeled case goods or wine for private labeling.

The Ciatti Company has a very extensive and up-to-date product line of premium varietals; generic wines; grape and fruit concentrates; brandy and high proof from grape, citrus, and grain. Internationally, Ciatti brokers exports of U.S. wines to overseas markets and imports of foreign wines to California labels and wineries, including wines from Australia, Chile, France, Argentina, and other major wine growing regions including South Africa.

Joe Ciatti, John Ciatti, Richard de los Reyes, and Greg Livengood specialize in premium coastal varietals and share responsibility of all California wineries. Chris Braun, Daniel Murphy, and Dennis Schropp cover international markets and wineries outside California. Barry Bedwell is general manager of the Ciatti grape brokerage. Andy Bivona and Brad Miller specialize in varietal juices and concentrates, beverage alcohol, and all natural grape colors.

For more information, contact:

Joseph W. Ciatti Co. LLC

1101 Fifth Ave., #170, San Rafael, CA 94901

tel: 415/458-5150; fax: 415/458-5160

e-mail: jennifer@ciatti.com

website: www.ciatti.com

PLEASE SEE JOSEPH CIATTI CO.'S AD, PAGE 74.

HOYT SHEPSTON, INC.

Hoyt Shepston has provided the beverage industry with decades of international transportation experience for both the import and export of beverages and related beverage industry articles. Established in 1850, Hoyt Shepston is one of the nation's, and California's, oldest custom house brokers and freight forwarder/OTIs offering a full range of international transportation-related services.

Whether shipping one case or a full container by air or sea, Hoyt Shepston's staff of professionals and worldwide network of agents moves cargo with little or no effort by the client, in increments or the total transportation concept, integrating all aspects of international trade between warehouses.



Hoyt Shepston has resources and expertise to bring products to and from its various international supply points in a seamless transaction. Hoyt Shepston specialists offer all phases of documentation services, insurance, label approvals, BATF, drawback procedures, duty and quota requirements, letters of credit and more, all backed by 150-plus years of experience.

Hoyt Shepston's headquarters and warehouse are located in South San Francisco with a branch office/marine division located on the Embarcadero in San Francisco, and a worldwide web of national and international agents.

For more information, contact:

Fred Hosking, Hoyt Shepston, Inc.

700 A. Dubuque Ave., S.

San Francisco, CA 94080

tel: 800/675-HOYT (4698), ext. 311

fax: 650/634-8063

e-mail: fred@hoyt-shepston.com

PLEASE SEE HOYT SHEPSTON'S AD, PAGE 63.

HALL & BARTLEY

A full-service architectural firm specializing in design and planning of wineries, Hall & Bartley designed Flowers Winery in Sonoma County, CA, (see photo) among others.



Hall & Bartley's unique talents go beyond traditional architecture in its ability to understand and analyze the functional requirements of a modern winemaking facility. In its 18 years of business, Hall & Bartley is responsible for the design and planning of many of California's premier wineries. Projects include: Flowers Winery, Marimar Torres Estate, Geyser Peak Winery, Chateau St. Jean, Kendall-Jackson's La Crema facility, Atlas Peak Vineyards, Meridian Vineyards, and St. Francis Winery.

Through careful consideration of and attention to desires of its clients, Hall & Bartley is a leading winery architect in the U.S.

Current projects include: Clos La Chance Winery, Stags' Leap Winery, Beringer Vineyards, and Hanzell Vineyards.

Services include: feasibility studies, master planning, process sizing and flow analysis, architectural design, construction document preparation, government permitting assistance, construction bidding assistance, and construction administration for both new and existing winery projects.

For more information, contact:

Hall & Bartley

4701 Old Redwood Hwy, Ste. 2B

Santa Rosa, CA 95403

tel: 707/544-1642; fax: 707/544-1646

DAL POGGETTO & Co. LLP, CPAs

Dal Poggetto & Company LLP specializes in accounting, tax, and consulting services for privately-held businesses and their owners, with a particular emphasis in the wine industry. The firm's partners have been accountants and consultants since 1975 and have worked with companies of all sizes, from those with annual revenues under \$50,000 to those with more than \$500 million in annual sales.

The firm's services include: profit-improvement studies; strategic planning; financial modeling; transaction consulting for mergers, acquisitions, and divestitures; tax strategies and business planning; as well as traditional services, such as auditing and accounting, tax planning and preparation, and accounting systems development and consulting.

The staff at Dal Poggetto & Company have extensive wine industry experience and are frequently able to make cost and tax savings recommendations to clients. They have an excellent reputation for clear communication skills, technical abilities, and responsiveness to clients.

The high quality of the firm's practice is maintained by a program of formal technical training for staff that greatly exceeds state licensure requirements and the programs of most other accounting firms. The most current technologies are employed to deliver client service in an efficient and cost-effective manner.

For excellent service at a competitive cost, provided by experienced professionals with broad consulting skills tailored to the needs of the wine industry, contact Dal Poggetto & Company.

For more information, contact:

Dal Poggetto & Company LLP, CPAs

Jon P. Dal Poggetto, CPA

149 Stony Circle, Ste. 100

Santa Rosa, CA 95401

tel: 707/545-3311; fax: 707/525-3999

e-mail: info@dalpoggetto.com

website: www.dalpoggetto.com

ETS LABORATORIES

ETS is one of the most advanced wine analysis laboratories in the world. Located in St. Helena — Napa Valley — it offers California wineries and suppliers access to the most modern and technically demanding analytical methods available in the wine industry.



ETS employs an array of sophisticated technologies to provide the highest quality data in the shortest time possible. Instrumentation capabilities include gas chromatography with various selective detectors (GC), gas chromatography/mass spectroscopy (GC/MS), liquid chromatography (HPLC), flame and graphite furnace atomic absorption, capillary electrophoresis, and multiple automated chemistry analyzers. All are available in-house with a variety of configurations to provide a complete range of analytical capabilities.

ETS is the only independent wine laboratory accredited by the American Association for Laboratory Accreditation to ISO 17025 quality standards.

ETS continues to meet and exceed your analytical needs by providing the highest standards in analytical data, quality assurance, customer service, and client confidentiality. ETS offers "pick-up" services and a night drop box for samples. Most test results are available within 24 hours.

For more information, contact:

ETS Laboratories

899 Adams St., Ste. A, St. Helena, CA 94574

tel: 707/963-4806; fax: 707/963-1054

e-mail: info@etslabs.com

website: www.etslabs.com

PLEASE SEE ETS LABORATORIES' AD, PAGE 7.

RBC DAIN RAUSCHER

The McDonough/Hennessy Investment Group at RBC Dain Rauscher provides a team approach to disciplined portfolio management and financial planning. As Financial Consultants, the McDonough Hennessy Investment Group provides complete analysis of clients' financial needs, including, estate planning issues, risk tolerance, retirement plan assessment, and "all season" portfolio performance.

The group's belief that "in order to make money ... you must first avoid losing it" is paramount in the investment selection process.

**RBC Dain Rauscher**

Member NYSE/SIPC

Founded in 1909, RBC Dain Rauscher serves individual investors and small business owners throughout the U.S. The investment banking division of RBC Dain Rauscher, RBC Capital Markets, offers a broad range of corporate and investment banking services to clients including services to help obtain capital for small businesses.

Contact the McDonough/Hennessy Investment Group for your financial needs in the winery and vineyard.



For more information, contact:

Michael McDonough

Vice President, Financial Consultant

James Hennessy

Vice President, Financial Consultant,
El Dorado Winegrape Growers Assn.

Amy Heald

Senior Registered Client Associate

3700 Douglas Blvd., Ste. 200

Roseville, CA 95664

tel: 888/388-2315; fax: 916/797-6603

website: www.drconnect.com

PLEASE SEE RBC DAIN RAUSCHER'S AD, PAGE 46.

THE WINE LAB

Providing chemical and microbiological analysis since 1975, The Wine Lab offers winemakers user-friendly technical services and practical assistance in wine quality assurance, emphasizing problem-solving and trouble-shooting.

Sometimes called "The Bad Wine Lady," founder Lisa Van de Water is unsurpassed in sleuthing the causes of spoiled wine with the photomicroscope. Lisa, Lab Director Nicole Haller-Wilson, and their enology staff are dedicated to helping winemakers interpret and apply test results, and giving technical product support to avoid problems during fermentation and beyond.

A move in 2002 has allowed expansion of the lab and other services, including an R&D department. Research topics include:

- **Yeast nutrient supplementation:** trial fermentations are giving surprising results on effects of ingredient composition and timing of additions.
- **Phenolic maturity:** cooperative investigation using different assays.
- **Brettanomyces (Dekkera):** strain collection and genetic identification
- **Lactobacillus:** spoilage of stuck wines and lysozyme sensitivity of new isolates.

The Wine Lab is forming a global supplies services network:

- A New Zealand lab is 10 years old. Labs in Chile and Uruguay are being established.
- Hosting international consultants and foreign enology trainees to promote worldwide exchange of technology.
- Lisa gives seminars and consultations on microbiology in seven countries.

The Wine Lab

110 Camino Oruga, Napa, CA 94558

tel: 707/224-7903 or 800/224-WINE

fax: 707/255-2019

e-mail: info@thewinelab.com

website: www.thewinelab.com

In New Zealand/Australia:

Pacific Rim Oenology

Debra Hedley

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e-mail: pros@hortresearch.co.nz

In South America:

Por consultas in idioma español:

vinotec@thewinelab.com

PLEASE SEE THE WINE LAB'S AD, PAGE 67.

ARTHUR ENGINEERING, INC.

Arthur Engineering has over 32 years of experience providing electrical and control systems design for wineries of all sizes. The company has a reputation for personalized attention to the individual needs of every project, which has resulted in long-term relationships throughout the wine industry.

Arthur Engineering is qualified to assist you with all your electrical system planning and design projects.

Areas of expertise include:

- Electrical system planning
- Load flow, short circuit, and coordination studies
- Energy analysis/conservation studies
- Electrical project feasibility studies
- Electrical system option studies
- Electrical site investigation and one-line development
- Safety and code compliance studies
- Main service design (high, medium, and low voltage)
- High/medium voltage substation design
- Service coordination with electrical utility
- Medium and low voltage power distribution system design
- Motor control system design
- Energy efficient lighting design
- Custom control system design
- Programmable logic control systems specification/design and programming
- Stand-by and emergency back-up generator system design and specification
- Cogeneration peak shaving design
- Solar power supplementation
- Electrical construction engineering/observation

Arthur Engineering has extensive experience in the following applications:

- Wineries and spirits plants
- High/medium voltage substations
- Water storage/pumping plants
- Storm water pumping systems
- Wastewater and sewage pumping stations
- Schools, universities, offices, commercial buildings, and warehouses.

For more information, contact:

Ken Arthur, Arthur Engineering, Inc.

7880 Alta Valley Dr., Ste. 104

Sacramento, CA 95823

tel: 916/681-0226; fax: 916/681-6884

website: www.arthurengineering.com

OZBORNDOOI ARCHITECTURE

From basic to bodacious, winery design is ozborndooli Architecture's passion.

With over 30 years of practical architectural experience, ozborndooli possesses expertise in all phases of winery development including master planning, feasibility studies, project management, architectural design, and interior design.

As winemaking technology changes, so has the technology of the winery building. The choices are vast. The firm has kept up with technology, changes in winemaking approaches, and regional issues that affect the wine industry. Whether it is finding the most appropriate insulated wall system, researching special interior coatings to maintain a clean working environment, or running day lighting studies to balance natural light with artificial lighting, ozborndooli designs more than the building shell.



A well-designed facility can be a marketing opportunity, reflecting the quality of the wine that is produced. ozborndooli has designed several visitor-oriented spaces including Valley of the Moon Winery, Sebastiani Vineyards, Whitehall Lane Winery, and the recently completed Clos du Bois Culinary Center, all in Northern California.

ozborndooli Architecture's award-winning winery designs can offer a balance of winery experience and design talent. The firm can meet your deadlines, work intelligently with the natural surroundings, and create a unique experience for your visitors.

For more information contact:

ozborndooli Architecture

Susan Ryan

822 D College Ave., Santa Rosa, CA 95404

tel: 707/542-3770

e-mail: people@ozborndooli.com

website: ozborndooli.com

PLEASE SEE OZBORNDOOI'S AD, PAGE 70.

BARBARA LINDBLOM — WINEMAKER/CONSULTANT

For over 25 years, Barbara Lindblom has been working with a wide range of wines, ideas, and individuals in the wine industry. She brings a global understanding of grape growing and winemaking to her work and is particularly committed to strengthening the connection between quality viticulture and winemaking.

In addition to general winemaking and consultation, Lindblom provides unique and innovative services in technical training, field trial design, and sensory program development.

She has helped clients develop strategies and programs that have produced:

- Fine wines reflecting their origins,
- Clear communication and understanding between growers and wineries and between wineries and their markets,
- Well-defined winemaking objectives and protocols,
- Expanded use of sensory techniques and improved production tasting practices,
- Practical experimental design.

Lindblom's clients come from all facets of the industry. Whatever the project, her objective is always to develop a customized program that meets her client's specific needs and style.

For more information, contact:

**Barbara Lindblom —
Winemaker/Consultant**

1915 Diamond Ct., Santa Rosa, CA 95404

tel: 707/544-2910; fax: 707/544-3691

GOVERNMENT LIAISON SERVICES, INC.

Government Liaison Services (GLS) maintains one of the largest and most experienced staffs serving the wine industry. Since 1957, GLS has obtained BATF label approvals along with pursuing BATF rulings on formula submissions, lab analysis results, advertising, and many other BATF matters. GLS also specializes in performing trademark, patent, and copyright search services.

For more information, contact:

Government Liaison Services, Inc.

200 N Glebe Rd., Ste. 321

Arlington, VA 22203

tel: 800/642-6564, or

703/524-8200 outside U.S.

fax: 703/525-8451

website: www.trademarkinfo.com

PLEASE SEE GOVERNMENT LIAISON SERVICES' AD,
PAGE 51.

ENOLOGIX

Enologix offers a quality management system that tracks wine quality from vineyard to consumer, with more than 10 years of wine-industry experience, Enologix is a leader in providing quality metrics for fine wine production which can improve national critics' scores.

Wineries using Enologix products/services have been able to maximize wine quality, develop high-performance vineyard and winery procedures, reduce operating costs, optimize brand pricing in the marketplace, and develop brand leadership.

Enologix's quality management system can help any wine producer who would like to consistently produce wine in a specific style and predict the quality and critic's ratings of new wines up to two years prior to bottling. Proprietary chemical analyses is used to measure the intensity and balance of color and fragrance, to measure the flavor of grapes, production wines, and finished wines.

Enologix combines this chemical analysis with viticultural and wine-making databases in such a way that wineries can easily benchmark and improve operations and quality. This gives wineries an additional set of decision-making tools they can use to maximize results and minimize risk. Since the system is designed to integrate viticultural, production, and marketing activities, it is also a useful tool for team building and organizational planning. It allows management team members and other staff to see exactly how their actions impact the operations of the entire winery operation.

Enologix provides objective metrics that link *terroir*, viticultural practices, and winemaking regimens with wine quality, market preferences, and national critics' ratings.

For more information, contact:

Enologix

Leo McCloskey

461 Seventh St. W., #1, Sonoma, CA 95476

tel: 707/938-9463; fax: 707/935-3299

e-mail: info@enologix.com

website: www.enologix.com

MOLOFSKY BUILDERS INC.

Molofsky Builders Incorporated, licensed and established in 1979 in California's Sonoma Valley, specializes in high-end residential and commercial work and actively seeks projects of architectural interest and complexity. Diverse designs, unusual materials, and new technologies are key to keeping its work interesting.

One commonality in all Molofsky Builders' projects is its relentless effort to satisfy each client in every aspect of the process — from preliminary budget to final close out.



Recent projects include: Valley of the Moon Winery, Rosemount Estate Winery's American headquarters, Kenwood Vineyard's marketing offices, Ravenswood Winery's tasting room, and The Inn at Cedar Mansion.

Molofsky Builders is currently building Lytton Springs Winery in Healdsburg, CA, for Ridge Vineyards, which will be one of the largest straw bale buildings in the world.

Molofsky Builders has received both the Award of Merit and The Award of Commendation from the Sonoma Valley League for Historic Preservation, and top honors from the Redwood Empire Chapter of the American Institute of Architects.

The company has achieved an outstanding reputation by integrating three beliefs into every project: teamwork between the architect, builder, and owner; gaining each client's trust to achieve better service; and using the best people for the job.

For more information, contact:

Molofsky Builders Incorporated
PO Box 1861, Glen Ellen, CA 95442
tel: 707/996-9963; fax: 707/996-9962
e-mail: info@molofskybuilders.com

VINQUIRY, INC.

For analytical services, consulting, and supplies for the wine industry, Vinquiry's expert attention makes a critical difference. At Vinquiry, experienced enologists have been paying attention to the details of analysis and supplies for over 20 years. Vinquiry is BATF-certified for both wine and distilled beverages, providing expert, personalized consultations, testing, planning, and the best-targeted products.

The latest addition to Vinquiry's analytical capability is GC/MS analysis for TCA or organosulfur compounds.

Vinquiry has served North American winemakers from its Sonoma County main office since 1979. A satellite office in Santa Maria, CA was opened in 1999 to better serve Central Coast clients. In 2002, the company acquired Ascent Laboratory in Napa, CA, and renamed it Vinquiry Ascent Services. That laboratory provides comprehensive sensory evaluation of wine and corks, along with regular Vinquiry wine analysis.

Vinquiry offers a comprehensive range of fermentation products for the wine industry. Clients select from over 35 yeast isolates to make suitable matches for fermentation, considering grape variety, nutrient status, desired aroma and flavor profiles, and wine style.

Vinquiry is the exclusive North American distributor for the ENOFERM line of specialty yeast developed by Dr. Paul Monk and produced by Lallemend.

This past June, Vinquiry released its June 2002/June 2004 catalog of services and products. To request a copy, call 707/838-6312, fax 707/838-1765, or log on to www.vinquiry.com and fill out the online request form.

For more information, contact:

Vinquiry, Inc.
7795 Bell Rd., Windsor, CA 95492
tel: 707/838-6312; fax: 707/838-1765
e-mail: info@vinquiry.com
website: www.vinquiry.com

PLEASE SEE VINQUIRY'S AD, PAGE 27.

PAIGE POULOS COMMUNICATIONS

One of the wine industry's respected public relations agencies, Paige Poulos Communications (PPC) is known for development and execution

of strategic public relations plans that build brands and enhance reputations.

Founded in 1990 by Paige Poulos, PPC is a small, dynamic agency with a proven track record. Agency clients range in size from tiny family operations to multi-national corporations.

PPC agency has its own network of specialists around the world. Individuals in this group bring specific expertise to PPC clients on a "when needed" basis. This network ensures that every PPC client gets the best marketing and promotion people available without expensive overhead for services needed on an occasional basis.

PPC's range of professional services includes strategic public relations plan development and implementation, media relations for domestic and international publicity, marketing communications, internal communications, special event coordination, and writing for presentations, collateral materials, and other publications.

"Our goal, for our clients and ourselves, is preeminence among the very best," says president Paige Poulos. PPC offers complimentary initial introduction meetings and takes pride in providing services specifically tailored to each client's unique needs.

For more information, contact:

Paige Poulos Communications
PO Box 8087, Berkeley, CA 94707
tel: 510/528-0665; fax: 510/528-0667
e-mail: paige@paigepoulos.com
website: www.paigepoulos.com

PLEASE SEE PAIGE POULOS COMMUNICATIONS' AD, PAGE 70.

FRED LYON PICTURES

Get the photography you need, with confidence that it will present your story at its best. Get the pictures that sell and are sought

by magazines and book publishers.

Fred Lyon is the wine industry's own photographer. He relentlessly prowls vineyards and wineries around the world.

For wineries and wine marketers, Lyon creates innovative conceptual images for persuasive advertising, press use, and brochures. These are high-energy images, from an unusual breadth of experience, and from a photographer who is friendly, rapid, and reliable.

Be sure to visit his website.

For more information, contact:

Fred Lyon Pictures

3609 Buchanan St., San Francisco, CA 94123

tel: 415/922-5100; fax: 415/922-5762

e-mail: fred@fredlyon.com

website: www.fredlyon.com

AMERICAN AgCREDIT

American AgCredit, formerly Pacific Coast Farm Credit, is a locally owned agricultural lending association, which is part of the nationwide Farm Credit System established in 1917. American AgCredit is a cooperative, owned and directed by its members. Because of the association's specialization in agricultural finance, it



offers advantages to wine industry customers including a commitment to agriculture, knowledge of the industry, tailor-made programs, local decision-making, and competitive rates. Beginning in 2002, online banking is also offered for added convenience.

Understanding the special demands of the wine and vineyard industry, American AgCredit has programs to finance virtually every aspect of your business. These programs include long-, intermediate-, and short-term financing and leasing programs.

For more information, contact:

American AgCredit

PO Box 1120, Santa Rosa, CA 95402

tel: 707/545-1200; fax: 707/545-9400

e-mail: lindleyt@agloan.com

website: www.agloan.com

PLEASE SEE AMERICAN AGCREDIT'S AD, PAGE 8.

Neal Kinsey and Kinsey Agricultural Services presents **AN ADVANCED SOIL FERTILITY PROGRAM**

JANUARY 27, 28, 29 — 2003

LOCATION: Delta King Hotel, 1000 Front St., Sacramento, CA

COST: *Clients* — \$750 per person, includes lunch each day.

Non-Clients — \$1,000 per person, includes lunch each day.

FOR INFORMATION, CONTACT: Kinsey Agricultural Services, tel: 573/683-3880, or www.kinseyag.com

PROGRAM

Soil tests utilizing the Albrecht System to calculate needed nutrients for growing excellent crops including winegrapes.

DAY 1 (Monday) — Working with good soils

REGISTRATION: 8–8:30 AM PRESENTATION: 8:30 AM – 12 PM and 1–5 PM

- 1) The "Ideal Soil" 2) Lime and Gypsum 3) Just N-P-K 4) Magnesium Only
5) Sulfur and Boron Considered 6) Traces to the Rescue

DAY 2 (Tuesday) — Building fertility on poor soils

PRESENTATION: 8 AM – 12 PM and 1–5 PM with breaks

- 1) Light Sand 2) Extremely Heavy Soils 3) Excessive Magnesium 4) Low P and K
5) Needed Traces 6) Low pHs 7) Low Humus Content

DAY 3 (Wednesday) — Working with problem soils

PRESENTATION: 8 AM – 12 PM and 1–5 PM with breaks

- 1) Excessive Calcium 2) Excessive P and K 3) Excessive Sodium 4) Low Iron
5) High pH 6) Very Low P and K 7) Too Much in Traces

MOTTO KRYLA & FISHER LLP

Motto Kryla Fisher LLP (MKF) is a leading firm of wine business advisors, providing business consulting, wine industry research, and CPA services to owners and managers of hundreds of wineries and thousands of vineyard acres for 20 years.

As the only business advisory firm devoted exclusively to the premium wine industry, MKF is uniquely qualified to help clients be more successful by offering services that draw on its industry specialization and expertise.



MOTTO KRYLA FISHER LLP
Wine Business Advisors

MKF's consultants provide forecasts and business planning, strategic marketing plans, benchmarking, operations review, merger and acquisition services, winery and vineyard business valuations, and litigation support. The firm's tax specialists provide strategic tax planning for individuals, wineries, and vineyards, for specific transactions, and for estate and gift taxes.

Conducting and publishing original research and economic reports on the wine market, MKF is recognized for its expertise on the U.S. wine industry. Current publications include *Wine Trends*, *Grape Trends*, *US Wine Demographics Report*, *Vineyard Economic Study*, *Economic Impact of the California Wine Industry*, *Economic Impact of the Washington Wine Industry*, and a series of wine industry newsletters entitled *The MKF Advisor*.

For more information, contact:

Motto Kryla & Fisher LLP
The Wine Business Center
Lisa Anthony, Director of Marketing
899 Adams St., Ste. E, St. Helena, CA 94574
tel: 707/963-9222; fax: 707/963-1379
website: www.mkf.com

CRAIG ROOT & ASSOCIATES

Craig Root & Associates offers cost-effective opportunities to increase profits and enhance the visitor experience in your visitor center. Remember — you are not just selling wine — you are selling memories. An entertaining and informative visit to a visitor center stays in the consumer's mind long after more expensive advertising has faded.

The company's partial client list includes: Acacia Winery, Clos Pegase Winery, Domaine Carneros, Handley Cellars, Heitz Wine Cellars, Indian Springs Winery, Fess Parker Winery, Franciscan Vineyards, Freemark Abbey Winery, Kendall-Jackson Vineyards, Kenwood Vineyards, V. Sattui Winery, St. Clement Vineyards, Stag's Leap Wine Cellars, Vichon Winery, Zaca Mesa Winery, Niebaum-Coppola Winery, and Robert Mondavi Winery.

Craig Root's consulting services cover several areas of visitor center performance:

1. Complete visitor center start-up (design review, business plan, income/expense projections, tour creation, trade relations, and complete retail room organization).
2. Appraisal of current operations (through direct consulting and/or a "mystery audit" program) to cover all phases listed in #1. Helping staff develop strategies for more effective tour guide skills, such as voice and delivery — through videotape assessment.
3. Direct mail programs (from start-up to fine-tuning an existing program).
4. Trade relations: How to achieve better results with VIP buyers.
5. Seminars designed to improve management and staff performance (**Management seminar** presented at U.C. Davis and Cornell University, **Sales and Customer Service** for staff and more). Root teaches a class at U.C. Davis on Tasting Room Design and Management.

For more information, contact:

Visitor Management Resources
Craig Root & Associates
10 Upland Rd., St. Helena, CA 94574
tel: 707/963-7589; fax: 707/963-6009

BERGMAN EURO-NATIONAL

Bergman Euro-National is a real estate brokerage firm specializing in California vineyard and estate properties in Napa, Sonoma, and Mendocino counties. John Bergman has been in the real estate business since 1967 and believes that all prospective vineyard clients deserve an education before purchasing vineyard.

John has published several articles in educational vineyard media including: "How to Buy a Vineyard," "The Cash Flow, and Tax Advantages of Vineyard Ownership," "What Does it Cost to Produce a Glass of Wine," "Vineyard Values, Past, Present, and Future," "Economic Cycles of Vineyard Ownership," and other topics.

These articles, along with important statistics, trends, and a list of every vineyard-related property for sale in Napa, Sonoma, and Mendocino counties can be found online at www.bergmanvineyards.com. All properties are updated weekly.

Bergman has established himself with top professionals, all related to the vineyard business, and is offering their talents on a new website, www.vineyards101.com. Samples are: "Professional Vineyard Management," "A Top Vineyard Nursery," "The Highly Acclaimed Viticulturalist," "The Best Vineyard and Estate Financing," "A Wine Country Design Team," and more.

For more information, contact:

Bergman Euro-National
tel: 707/887-9822; fax: 707/887-1211
e-mail: john@bergmanvineyards.com
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PAGE 48.

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The Personnel Perspective provides consulting services in human resources, organizational development, training, and recruiting. During the last 15 years, the company has earned a reputation in the wine industry as a leading provider of a full range of human resource services.

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A partial list of The Personnel Perspective's winery clients includes: J Wine Vineyards & Winery, Domaine Carneros, Gundlach-Bundschu, Dry Creek Vineyard, Ravenswood Winery, Far Niente, Silverado Vineyard, Niebaum-Coppola Winery, St. Supery, Allied Domecq, Chateau Potelle, Lambert Bridge, Peter Michael, and Stag's Leap Wine Cellars.

For more information, contact:

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Established in 1966, BAR Architects has over 25 years of specialized experience in planning and design of California wineries. The firm offers a unique expertise and knowledge of the latest winemaking processes and techniques and associated facility requirements.

Projects have ranged in scope and size and included wine production and storage facilities, visitor centers, tasting rooms, reception areas, art galleries, conference facilities, retail operations, design of vineyards, caves, and winery tour sequence.

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Selected projects include: expansion and renovation to the Robert Mondavi Winery in Oakville, the Mumm Napa Winery & Visitor Center, Silverado Vineyards, Staglin Winery and Caves; Stonestreet and Cardinale Wineries for Kendall Jackson; and Jordan Winery and Robert Young Winery in Sonoma County. The firm is currently working on the programming of the Robert Mondavi Institute for UC Davis and a new winery for Merryvale Vineyards.

BAR's quality work is evidenced by both the high level of repeat clients and by creation of award-winning projects that are timeless and enduring. BAR Architects was recognized by the California Council AIA as Firm of the Year 2000, one of the highest honors that can be bestowed upon an architecture firm.

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George M. Schofield is a financial and real estate professional specializing in vineyards, wineries, and undeveloped land. He offers economic and financial planning with special interests in the wine and grape industry to provide the small agricultural business with the economic and financial expertise to successfully operate in a competitive environment.

While examining economic indicators and using forecasting to aid clients in short-term and long-term planning, he also evaluates investment opportunities and, with the use of computer models, simulates possible outcomes.

George M. Schofield is a CPA and has a MBA degree from Harvard. He served 10 years as CFO of Robert Mondavi Winery before establishing his own consulting business in St. Helena in 1984. He also holds a current

real estate broker license.

For more information, contact:

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Over 20 years of experience on more than 100 winery projects makes Larkin & Associates uniquely qualified to design winery mechanical systems. Specializing in cooling, ventilation, plumbing, and HVAC system-design for wineries, the firm has done large projects for Beringer, Kendall Jackson Clos du Bois, and Domaine Mumm, and smaller projects including Dominus Estate, Robert Young Vineyards, and Swanson.

Recent projects include Quintessa, Domaine Carneros' Pinot Noir facility, and Ridge Lytton Springs. The Ridge project is a straw bale building incor-

porating high insulation levels, natural ventilation, and high-efficiency mechanical systems. This project exemplifies the firm's endorsement of alternative and "green" building technologies, such as energy recovery, geo-exchange (ground-coupled) heat pumps, and passive systems.

The firm has strong continuing relationships with several wineries, and with winery architects and contractors. Owner Paul Larkin shares an interest in wine, and has visited wineries in France, Italy, and Germany.

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PLEASE SEE CSA'S AD, PAGE 34.

SCOTT LABORATORIES, INC.

Scott Laboratories offers a variety of technical and processing services to wineries.

Scott's laboratory is the senior independent wine laboratory in North America. Since its founding in 1933, it has provided analytical services to the wine and spirits industries.

From the beginning, Scott's service has been consultative in orientation. Problem solving receives equal billing with speed and accuracy. In-house options include gas chromatography, HPLC, and atomic absorption.

In addition to consultative work, other specialties include fermentation trouble-shooting, filterability testing, and BATF-certified analysis for export. The laboratory is also certified by the State of California for water analysis (including well and waste water).

In addition to outside services, the laboratory at Scott provides technical support for customers who use enzymes, tannins, gelatins, and adjuvants offered in Scott's portfolio of winemaking supplies. These products have been shown to be useful winemaking tools that can target specific winemaking problems, such as clarification, color stability, structure, and harsh tannins.

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PLEASE SEE SCOTT LABORATORIES' ADS, PAGES 71, 77.

GORDON GRAPHICS: LABEL ANALYSIS

FILE N° 007

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Geyser Peak's elegant label design complements the noteworthy reputation of this premium brand. Central in this design is the crest, set between contrasting black and white panels, utilizing three colors of ink. In addition, embossed gold foil is employed in the crest as well as the brand name. Black type overprints the gold foil border of this glue-applied label, while a stylized taper-shaped diecut completes the effect.

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Kennedy/Jenks Consultants Engineers & Scientists

Kennedy/Jenks designs systems with a thorough understanding of the current regulatory environment, which has recently begun to include tighter controls over certain winery practices. By leveraging its knowledge of wine-making processes and by-products, along with technical expertise in key environmental disciplines, Kennedy/Jenks can determine the best alternatives for your specific site conditions and operations.

Kennedy/Jenks was recently retained by the Wine Institute as a resource on the sustainability of revised state waste discharge requirements. The company's research on the best wastewater management practices may help shape the state's final policy.

Kennedy/Jenks' range of services includes the following:

- air emissions/odor control,
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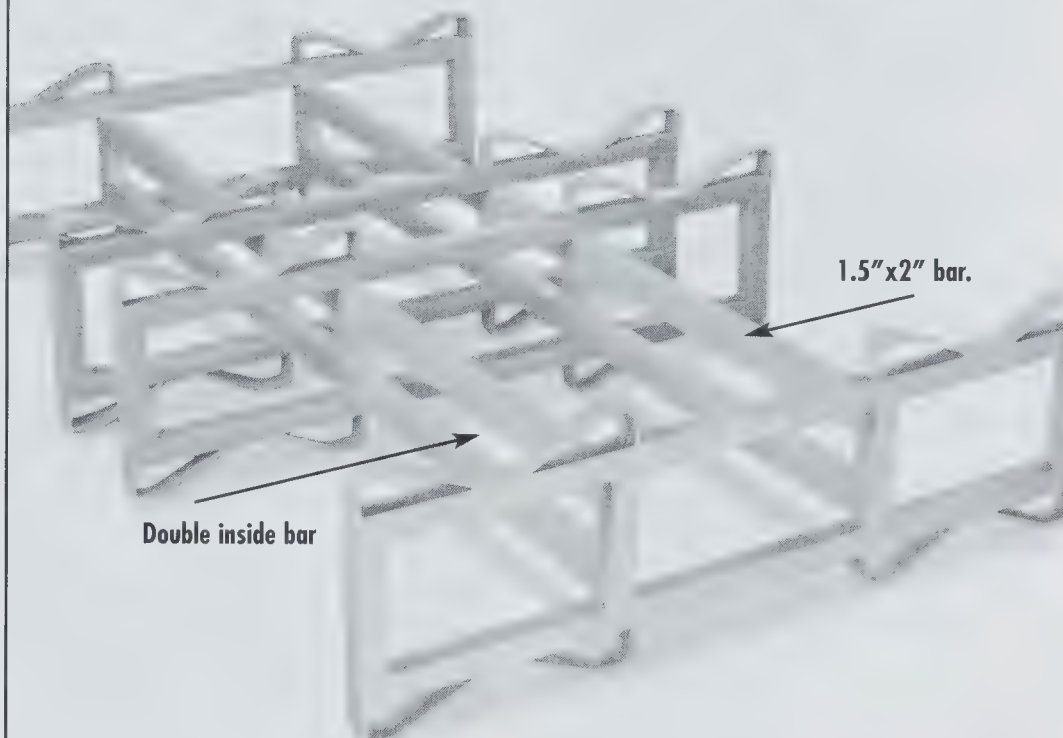
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Silicon Valley Bank is the only bank in the U.S. that has offices dedicated exclusively to the premium wine industry. Since 1994, SVB's Premium Wineries Practice has grown to more than 150 clients throughout California and the Pacific Northwest.

The bank's Premium Wine Practice relationship managers are experts in the unique fundamentals and complex challenges of the premium winemaking business. These seasoned professionals have developed a sophisticated understanding of the industry's financial needs, allowing them to provide customized financial services for each client.



Silicon Valley Bank

SVB provides premium wineries and vineyards a variety of financial services including accounts receivable and lending services for construction, acquisition, and development of winery equipment, facilities, and real estate.

SVB serves emerging growth and mature companies in the technology and life science markets as well as other targeted industries. Through its focus on specialized markets and extensive knowledge of the people and business issues driving them, SVB provides a level of service and partnership that measurably impacts its clients' success.

Founded in 1983 and headquartered in Santa Clara, CA, the bank serves more than 9,500 clients across the U.S. through 27 regional offices.

More information can be found at www.svb.com.

For more information, contact:

Silicon Valley Bank

Napa Valley Office

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St. Helena, CA 94574

tel: 707/967-4825

Sonoma County Office

3554 Round Bard Blvd., Ste. 308

Santa Rosa, CA 95403

tel: 707/535-5060

PLEASE SEE SILICON VALLEY BANK'S AD, PAGE 21.

WINE COUNTRY REAL ESTATE



Wine Country Real Estate is a full-service real estate brokerage specializing in wine country properties including vineyards and estates in Sonoma, Lake, and Mendocino counties.

Owner and broker Karen Kenny has been one of the area's top producing realtors since 1977. She draws upon her background in viticulture, advertising, and marketing to bring a unique perspective to her work in real estate.

As her business has grown, Kenny has increased her office staff to five experienced professionals (including herself). Carol Lexa, Mary O'Gorman, David Lake, and Tamra Larson are sales associates.

Kenny is a successful investor, developer, and winegrape grower. She holds a degree in viticulture from Santa Rosa Junior College. Her professional career includes experience in advertising, publishing, and film production. She has been a member of many professional organizations including the North Coast Grape Growers Association, the Sonoma County Grape Growers Association, and the Russian River Valley Winegrowers.

Kenny has an ongoing record of success because she focuses on her client's individual needs and tailors her approach to the special details of each situation.

For more information, contact:

Wine Country Real Estate

Karen Kenny

421 Healdsburg Ave., Healdsburg, CA 95448

tel: 707/433-2700; fax: 707/433-2052

e-mail: wcre@sbcbglobal.net or

kfine@sonic.net

website: www.winecountry-realestate.com

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PLEASE SEE WINE COUNTRY REAL ESTATE'S AD, PAGE 51.

LODI WINEGRAPE COMMISSION

Nestled between the San Francisco Bay and the Sierra Nevada mountains is the Lodi wine region, a breath of fresh air in the world of California wine. Lodi enjoys a classic Mediterranean climate perfect for creating fruit-forward wines that are winning over consumers worldwide.

Lodi's star is rising on the Northern California wine scene. More Cabernet Sauvignon, Merlot, Chardonnay, and Sauvignon Blanc are grown in Lodi than in any other region. The deep, sandy, clay loam soil is especially great for growing Zinfandel. Remarkably, some of Lodi's "old vine" Zinfandels date back to the late 1800s!

Lodi growers have the Lodi Wine & Visitor Center, where seasoned wine professionals and casual enthusiasts alike discover the broad range of full-flavored wines Lodi has to offer. Over 125 wines are available for tasting and

sale at the center. Visitors can also revel in the many educational displays and interactive exhibits before continuing their Lodi winetasting adventure at over 30 local wineries.

Due to its convenient location and special event capabilities, the Lodi Wine & Visitor Center has hosted numerous wine industry events.

For more information, contact:

Lodi Winegrape Commission

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Thinking outside the agriculture box

BY Karen Ross, President
California Association of
Winegrape Growers

Almost every industry today is told to "think outside the box" in order to succeed in an increasingly competitive global market and ever more diverse and complex political and social environment. But to do that, we first need to consider a crucial question: What is *inside* the box?

Throughout our history, "inside the agriculture box" has meant an orientation toward the most efficient production. Our focus has been on higher volume, lower cost, and ensuring the availability of inputs, such as water, soil, and crop protection tools. Our markets have been driven by expanding population and income growth. There really has not been much emphasis on what consumers want.

In the film, *Field of Dreams*, the theme was "Build it and they will come." Inside the box, agriculture has said, "Grow it and they will buy."

But, we can't afford to think that way anymore. Thinking outside the box, we must shift from being production-driven to being market-driven. That means we must grow not only what consumers want, but we must do it in a way that is acceptable to our changing society. By doing so, we increase the possibility of adding value to our products and services and expanding support for our industry from a predominantly urbanized society with strong environmental values.

California Sustainable Winegrowing Practices project

The wine community, through Wine Vision and other collaborative efforts, has taken a significant first step in "thinking outside the box."

Building on the impressive work in sustainable practices already undertaken by regional winegrowing organi-

zations, individuals, and private companies, and inspired by the Wine Vision strategic goal to be a leader in sustainable practices, the Wine Institute and the California Association of Winegrape Growers (CAWG) initiated the joint Sustainable Winegrowing Practices (SWP) project in June 2001.

Real ToolBox, a sustainable-agriculture and resource-conservation professional services firm, was retained as project manager to work closely with a joint Wine Institute/CAWG committee of 50 growers and vintners. The project culminated in October 2002 with introduction of *The Code of Sustainable Winegrowing Workbook*, a voluntary self-assessment guide.

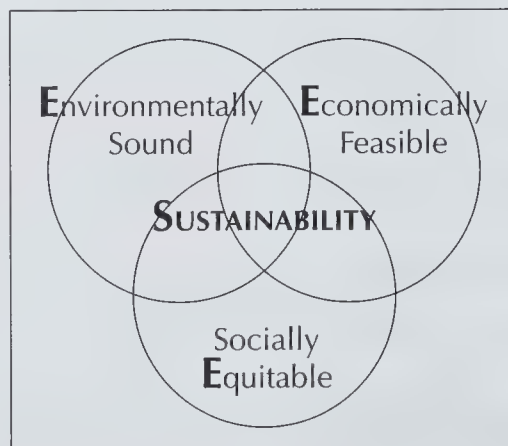


Figure 1. Sustainability as defined by the three overlapping principles of Environmentally sound, Economically feasible, and socially Equitable.

The primary audience for the workbook is California winegrowers and vintners, but it promises to be a model for sustainability for wine communities in other states and countries, for other agricultural crops, and perhaps for other industries. The workbook content can also be useful to a wider audience including employees, suppliers, wine buyers, neighbors and local community members, representatives of the environmental and social equity communities, policy makers, regulators, media, and consumers.

The principal purpose of the workbook is to provide winegrowers and vintners with a tool to voluntarily:

- Assess the sustainability of practices;
- Identify areas of excellence and areas where improvements can be made; and,
- Develop action plans to increase an operation's sustainability.

Sources for the model

Two groups, the Lodi-Woodbridge Winegrape Commission (LWWC) and the Central Coast Vineyard Team (CCVT), provided the model for development of this self-assessment tool. CCVT members were pioneers in developing the first vineyard self-assessment, the *Positive Point System*.

LWWC combined elements of the *Positive Point System*, new winegrowing content, and a four-category self-assessment format developed by Farm*A*Syst to produce the *Lodi Winegrower's Workbook*. The LWWC allowed the joint committee to directly adopt chapters from the *Lodi Winegrowers Workbook* for the project.

The overall, long-term mission for the Code of Sustainable Winegrowing Practices includes:

- Establishing voluntary high standards of sustainable practices to be followed and maintained by the entire wine community;
- Enhancing winegrower-to-winegrower and vintner-to-vintner education on the importance of sustainable practices and how self-governing will enhance the economic viability and future of the wine community; and,
- Demonstrating how working closely with neighbors, communities and other stakeholders to maintain an open dialogue can address concerns, enhance mutual respect, and accelerate results.

A vision for sustainability

The vision of the SWP project is long-term sustainability of the California wine community. To place the concept of sustainability into the context of winegrowing, the project defines sustainable winegrowing as growing and winemaking practices that are sensitive to the environment (Environmentally sound), responsive to the needs and interests of society-

at-large (socially Equitable), and are economically feasible to implement and maintain (Economically feasible). The combination of these three principles is often referred to as the three "E's" of sustainability (Figure I).

These three overarching principles provide a general direction to pursue sustainability. However, these principles are not easily translated into everyday operations of winegrowing and winemaking. To bridge this gap between general principles and daily decision-making, the workbook's chapters translate the overarching sustainability principles into specific winegrowing and winemaking practices (Figure II).

Sustainability values

This project is guided by the following set of sustainability values:

- Produce the best quality wine and/or grapes possible.
- Provide leadership in protecting the environment and conserving natural resources.
- Maintain long-term viability of agricultural lands.
- Support the economic and social well-being of farm and winery employees through training and competitive compensation.
- Respect and communicate with neighbors and community members;

respond to their concerns in a considerate manner.

- Enhance local communities through job creation, supporting local business, and actively working on important community issues.
- Honor the California wine community's entrepreneurial spirit.
- Support research and education and monitor and evaluate existing practices to expedite continual improvements.

What the workbook is and is not

It is important to note that this workbook is a *voluntary self-assessment tool*. The workbook is *not*:

- a "how-to" manual for winegrowing and winemaking;
- a set of "rules" that must be followed; or
- an external rating system to be used by others to judge your operation.

This workbook does provide the opportunity to voluntarily self-assess the relative sustainability of a vineyard and/or winery operation. The workbook is *not* linked to any outside certification system. However, due to the interest of some wine community members, it is designed to be easily adapted to international environmental management system (EMS) standards, such as the ISO 14000 family, and the international sustainability reporting efforts, such as the Global Reporting Initiative.

Five key points for using the workbook

1. Familiarize yourself with the workbook: First, thumb through it to get a feel for the scope and format. There are 221 self-assessment questions within 13 chapters:

Each chapter has a set of industry-specific criteria to self-assess sustainability performance of vineyard and winery operations. Each criteria has four performance categories. From right to left in Table II, the categories represent increasing sustainability.

2. Decide what to assess: Begin by selecting one or more vineyards and/or winery facilities to assess. If you manage multiple vineyards and/or winery facilities, it may make sense the first time through the workbook to select an operation you think would assess the highest and another that you think would assess lower.

3. Do your self-assessment: Read each question and decide if it is applicable to your vineyard and/or winery. *Not all questions are applicable to every vineyard or winemaking facility.* After reading each category, decide which category best describes the operation(s) you are assessing. The workbook includes a set of self-assessment evaluation sheets to keep track of your assessment. An example is provided in Table III.

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SUSTAINABILITY

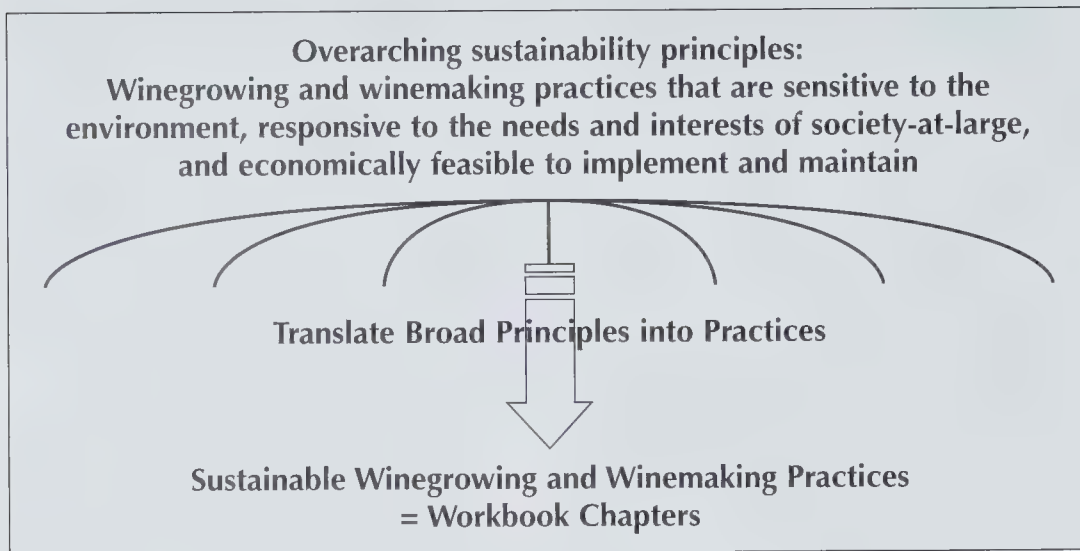


Figure II. The relationship between the overarching winegrowing sustainability principles and the workbook chapters.

Many of the self-assessment questions are followed by educational boxes to provide supplemental information on specific sustainable practices. Specific resources and Internet links are included

for many questions. Additional resources and references are provided at the end of the workbook.

4. Develop your action plan: Once you have completed the self-assessment

portion of the workbook, the next step is developing an action plan for your vineyard and/or winery operation. Your evaluation sheets will show which areas of your vineyard and/or winery operations may need some changes to maximize performance or prevent environmental problems. Pay special attention to all issues that have a 1 or a 2 rating. These are areas for potential improvement.

To develop an action plan, you will need to analyze your situation, then decide what you want to do and when it can be done. You decide what actions to take over the next five years. Remember, this is *your* action plan — it must suit you and your operations. The educational boxes and resource links in the workbook may be helpful in developing your action plan.

5. Submit your self-assessment evaluation and provide feedback: The SWP project is interested in receiving self-assessment evaluations, which will be kept confidential. The project would also

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appreciate receiving feedback about the workbook on the "Comments," "Corrections," and "Suggestions" sheets, included to be returned to the joint project.

The submission of self-assessment evaluation sheets is *voluntary*, and they will be treated with *strict confidentiality*. The information will be used by the project for the following purposes:

- To establish baseline information on statewide adoption of sustainable practices by winegrowers and vintners.
- To provide feedback to regional winegrower and vintner associations on areas of excellence and areas that need improvement, thus helping to target educational programs and other resource investments.
- To improve the workbook self-assessment questions to accurately capture useful information on sustainable practices.
- To document beneficial sustainable practices and innovation that can be

Table I
Chapter Title
Viticulture
Soil Management
Vineyard Water Management
Pest Management
Wine Quality
Ecosystems Management
Energy Efficiency
Winery Water Conservation & Water Quality
Materials Handling
Solid Waste Reduction & Management
Environmentally Preferred Purchasing
Human Resources
Neighbors and Communities

Table I: Authors are Jeff Dlott, Cliff Ohmart, Steve Matthiasson, Kent Reeves, John Garn, Liz Thach and Carla De Luca.

rapidly adopted by other vineyards and wineries.

Steve Schafer, CAWG chairman, has been part of a Central California group of growers who reviewed various chapters and provided input to the authors. One of the things he likes best about the workbook is how it is formatted.

"It brings everything together in a way that's easy to follow, and it makes it easier to get your arms around the idea of sustainability," says Schafer. "I can go at my own pace, or I can participate in a workshop with other growers to review and discuss the issues addressed. In the tough competitive environment we face, we need to look for every way we can to differentiate ourselves and meet consumer expectations. This focus on sustainability is critical for our survival."

In addition to the Central California group of growers, the following regional grower and vintner groups reviewed the workbook and provided input: Sonoma County Grape Growers Association, Santa

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SUSTAINABILITY

Table II. Example of four-category self-assessment continuum of increasing sustainability

Criteria	Category 4	Category 3	Category 2	Category 1
3.9 Soil Compaction	I choose or modify equipment to minimize compaction* (e.g. lightest equipment possible, track-layers, wider or bigger-diameter tires, tire pressures as low as possible) <i>And</i> Permanent cover crop or a non-tilled and reseeded annual cover crop is maintained <i>And</i> Equipment never enters vineyard during wet soil conditions.	I choose or modify equipment to minimize compaction* (e.g. lightest equipment possible, track-layers, wider or bigger-diameter tires, tire pressures as low as possible) <i>And</i> Annual cover crop is grown every year <i>And</i> Equipment use is minimized in the vineyard during wet soil conditions.	I choose or modify equipment to minimize compaction* (e.g. lightest equipment possible, track-layers, wider or bigger-diameter tires, tire pressures as low as possible)	I do not consider soil compaction* when choosing equipment and equipment is driven in the vineyard no matter how wet the soil even when there is a danger of getting stuck.

← INCREASING SUSTAINABILITY

* Tractor width is also an important factor in soil compaction. If the tire/track is only a foot or so away from the vine row it will compact the rooting zone of above ground drip irrigated vineyards more than narrower tractors.

Cruz Mountains Winegrowers Association, Lake County Winegrape Commission, Napa Valley Vintners Association, Napa Valley Grape Growers Association, Napa Sustainable Winegrowing Group, Calaveras Winegrape Growers, and the Central Coast Vineyard Team.

Input was also received from many reviewers from the University of California and California State University campuses, in addition to the federal EPA, the California Department of Food & Agriculture and other state

agencies, plus environmental and social equity organizations.

A 501(c)(3) organization, the California Sustainable Winegrowing Alliance, has been created by Wine Institute and CAWG to advance the adoption of sustainable viticulture and viniculture practices through research and education. The group's board of trustees will focus on raising funds to print workbooks and sponsor regional workshops in every part of the state. Their purpose is to introduce the book to growers and vintners and to fund

ongoing education programs that will advance the principles of sustainability articulated in the workbook.

California's rapid population growth (600,000 people per year currently, with an anticipated annual increase to 850,000 by 2015) has resulted in intense competition for natural resources — the very natural resources that make California wine the unique product it is.

As one of the largest sectors of the California agricultural industry, the wine community is taking responsibility for environmental stewardship and good neighbor policies. The workbook is the first step in actively promoting sustainable practices that respect nature, our employees, our neighbors, and communities — while also helping meet the industry's bottom line.

Table III. Example self-assessment evaluation sheet

SOIL MANAGEMENT	Category				
Criteria	4	3	2	1	N/A
3.8 Organic matter					✓
3.9 Soil compaction		✓			
3.10 Knowledge of soil series		✓			

If the question is not applicable to your vineyard or winery operation, please check this "not applicable" box.

Based on the enthusiastic response not only from California growers and vintners, but also from the wine industry in other states and countries, "thinking outside the box" has positioned the California wine community to be a leader in sustainable winegrowing, thus enhancing our historical and cultural value to the state. ■

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Things to consider when purchasing equipment

Purchasing new "toys" for the laboratory is often an exciting and challenging process. Hopefully the tips below will provide you with the tools to make the experience hassle-free.

Cost benefit analysis

Your winemaker has asked for an analysis that requires you to purchase a new piece of equipment. Or there is a demand for increased efficiency or accuracy. Before rushing out to get all the glossy brochures, stop and ask yourself the following questions:

What will it cost?

The first thing to do is to find out approximately how much the instrument costs. Though you may already have an idea, contact a supplier to find out the current price. You may wish to do this anonymously to prevent the barrage of calls that would invariably follow.

What will it cost to buy?

After you have the cost, the next task is to determine how many of the required analyses you will do in one year. If you've done them before without the piece of equipment you're considering, simply review your records and note the number of analyses from one year to the next. If the analysis is a new one, ask the winemaker to estimate how many may be required.

The third task is to find out how much your local contract analyst charges to perform the analysis. If you divide the price of the instrument by the cost of the contract analyst, you will know approximately how many analyses you would need to perform to cover the cost of the instrument. You will then be able to calculate the approximate payback period.

For example, instrument X costs \$15,000. You calculate that you will need to analyze around 500 samples per year using this instrument. The contract lab nearby will charge \$10 per sample.

The cost to subcontract the analyses would thus be \$5,000 per year. This puts the instrument's payback period at three years, which is quite reasonable. If the payback period is five years or longer, you will have to consider whether the life of the instrument is long enough to cover its purchase price.

Before you decide to buy, there are several other questions you may wish to consider.

What will it cost to run?

While the payback period might look good, you may find that the instrument costs a small fortune to operate in ongoing consumables. A UV Vis Spectrophotometer is an example of this. The instrument itself is not too expensive, but the purchase of enzymes and cuvettes and dedicated pipetting systems should be factored into the overall cost. Only then can you determine the cost-benefit equation.

In this example, the added costs may be justified by the scope of analysis that this type of instrument provides. The point to remember is that operating costs may significantly increase the length of the payback period.

The same is true for commissioning costs and the staff time that will be devoted to performing the analyses. These costs must also be considered as part of the payback period.

Can you accommodate it?

Next, consider whether you have the space to accommodate the new equipment. Where will it be housed? Is the space appropriate? Does it need any special considerations like humidity or temperature control? Does it require water, gases, or multiple electrical outlets? Do you have sufficient space for the sample preparation that it requires, and do you have enough shelf or cupboard space to house the reagents?

Do you have staff to run it?

If you have adequate space and facilities for the instrument, what about staff? Is it an instrument that requires one dedicated staff person, or can anyone use it after some initial training? Don't forget that in the initial stages, one person may be spending time commissioning the new instrument, so plan for contingencies that allow staff members time to thoroughly evaluate its performance.

What about turn-around time?

Can you estimate how long each analysis will take using this instrument? Can you get faster turnaround time using a sub-contracted laboratory? Convenience is often one of the most important reasons to purchase a new instrument. Do you need to wait for a batch of analyses or can the test be performed on a single sample?

Will it do what you want it to do?

This is one of the most important questions you should ask yourself. After all, it might be cheap to buy and easy to run but if it doesn't provide you with the results that you need, then the rest is inconsequential.

If you do nothing else please take this step in the process. I cannot emphasize its importance enough. It could save you much time, money, and anguish in the future. Consult your winemaker or whoever uses the results to make decisions. Find out what their expectations are and get them in writing!

You should provide this information to the supplier. If he says yes, the instrument can perform at this level, then get him to put it in writing or sign something that you have written. Include a statement that says you can return the instrument for a full refund if it does not perform to those specifications. You could even take delivery of the instrument with the understanding that you will not pay for it until you are happy that it meets the criteria you have specified.

You will find that a supplier is less likely to exaggerate the abilities of an instrument if he has to sign a statement about it. If you have a signed agreement from the supplier and the instrument does not perform to the specified standards, you then have an ironclad case for returning it. Of course, you will have to provide quality data that substantiate your

WINERY LABORATORY QUALITY

claims. However, I am sure that you would collect that information on a routine basis!

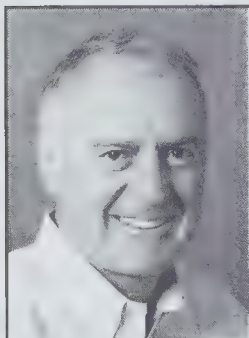
Does it do anything else?

If you think the instrument will meet your requirements regarding accuracy and precision, another question you might ask is: Can it be used for any other analyses? Let's take the UV-Vis spectrophotometer as an example again. Your winemaker may want it for fast and accurate malic acid analysis, however, it could also be used for glucose/fructose, acetic acid, free amino nitrogen, and grape and wine color measurements. This makes

the instrument potentially more valuable to the laboratory, which could help justify its purchase (since benefits will accrue to both the laboratory and the winemaker).

What level of maintenance does the instrument require?

Find out what level of maintenance the instrument requires. You can do this by obtaining a list from a supplier of other winery laboratories who have already purchased the item. If the equipment is good, the supplier will be more than happy to give you this information.



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WINERY LABORATORY QUALITY

If you are the first winery laboratory to take delivery of the instrument, then the specifications for accuracy and precision take on critical importance, since a wine matrix may not yet have been evaluated. If you have a list of happy customers, call some of them and get feedback on the instrument's performance. You might find some of the added bells and whistles that are available are worth considering, or alternatively, a waste of money.

You should also question the supplier (and the happy customers) about the level of support you should expect if the instrument breaks down. Will the supplier provide a technician within 24 hours? Find out if there is, in fact, a technician in your area, as one on the other side of the country won't be able to provide on-the-spot support on short notice.

Conclusion

If you have answered all these questions to your satisfaction, you can be reasonably confident that the instrument you have chosen will perform to your expectations. And if it doesn't, you have provided yourself with an opportunity to return it at no cost to your winery. Hopefully that won't be necessary, but it does provide great peace of mind.

Have fun with your new "toys!" ■

Sue Weeks is an Australian wine laboratory consultant. She provides assistance in areas of formal or informal quality system implementation, method validation, and troubleshooting, laboratory setup, personnel selection, and staff training. She also facilitates international wine-industry training in conjunction with the Communicating for Agricultural Exchange Program (CAEP), in Fergus Falls, MN. She visits America often and can be contacted through the Bibber International website at www.bibber.com.au or by fax at 618/8563 2433. She can also be contacted through Gordon Burns at ETS Laboratories (St. Helena, CA) at tel: 707/963-4806.



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SMART VITICULTURE

by Dr. Richard Smart

Vineyard stars in the eastern U.S.

I visited the eastern winegrowing states in August to deliver seminars at Surry Community College in North Carolina, and in Avondale, Pennsylvania. I also visited vineyards in both these states and in New Jersey. As always, I was amazed at the burgeoning growth of the local wine industries in these areas and at the potential for continued growth.

We all know how important San Francisco is in helping drive cellar door sales and tourism in Napa and Sonoma. Just imagine the possibilities of being near major population centers of New York City, Philadelphia, Baltimore, and Washington, DC, to name a few.

Viticulture in the eastern U.S., however, is not always easy. Summer rainfall can create problems of excessive vigor and high disease pressure. Add to this the ever-present problems with winter freeze, and one can see why vineyard development in these regions has been slow in the past. But this is now changing quickly. Most people at my seminars were new to the industry, with most vineyards and wineries less than one generation old.

Some of the problems of viticulture in the eastern U.S. can be addressed by canopy management, especially the excessive vigor and high disease pressure. I was so impressed at the standard of canopy management in some vineyards I saw in Pennsylvania that I decided to make them the subject of this column.

Mica Ridge Vineyard

Ike Kerschner is a 1988 graduate from Penn State, who has had vineyard experience in New York, Ohio, and most recently Pennsylvania. There, he manages Mica Ridge Vineyard in West Chester, with eight acres of vineyard and heritage apples. The vineyard produces an average yield of about eight tons per acre from vines spaced six feet apart with seven-foot wide tractor rows.

Kerschner grows Petit Verdot, Carmine, Pinot Gris, Muscat Blanc, Cabernet Sauvignon, and Merlot. Carmine is a red grape variety bred at University of California, Davis, that Ike likes a lot; in fact he has a private breeding program, crossing it with Cabernet Franc to have a variety well-suited to Pennsylvania. Vigor on the site is high, because soils are deep and part of the farm used to be alfalfa fields.

Ike's early experience was with vertical shoot positioning (VSP). Gradually, he became aware that his practices of leaf-pulling and shoot-thinning were "band-aid viticulture." Knowledge of the soil conditions at Mica Ridge allowed Ike to anticipate vigor problems in his new plantings, so he considered other trellis systems. He wanted to use an existing mechanical harvester and also bird netting, so he chose vertically divided canopy systems.

The first system Ike installed was the Te Kauwhata Two Tier (TK2T), which he saw as a simple extrapolation of VSP. This system consists of two cordons, one about 24 inches above ground, the second about 60 inches above ground, with posts seven feet high. Both canopies are vertically shoot positioned upwards.

This system was my first experience with vertical canopy division, which I was involved in developing in New Zealand in the mid-1980s. Ike has subsequently moved on to Scott Henry and Smart-Dyson in recent plantings.

The TK2T has worked very well for Ike. He finds it a simple system to use, and it has produced good yields of ripe fruit. However, the system has a principal labor disadvantage in that the bottom cordon is close to the ground and is uncomfortable to winter prune. There were also problems with mechanical harvesting since the fruit zones are separated. This can be accommodated by most harvesters with vibrating picking rods.

Convinced of the virtues of producing good yields of quality fruit from divided canopies, Ike moved on to the spur-pruned form of the Scott Henry trellis. This has also performed well, and now Ike is also using Smart-Dyson. With all of these systems he is achieving good yields of ripe fruit, with less disease pressure than with the VSP trellis.

Ike has heard of people who are dissuaded from using divided canopies because of perceived excessive labor costs. He is convinced that vineyard profit is increased by canopy division, and that while labor costs are increased, they do not become unreasonably high. He finds labor for trimming and shoot positioning to be about 40 to 50 hours per acre. Ike is convinced that divided canopies require less rather than more labor, since the need to do shoot-thinning and leaf-pulling can be reduced or even eliminated.

It was a great pleasure for me to do a vineyard walk with 140 people around the Mica Ridge Vineyard. The shoot-positioning was done immaculately, and all trellis systems were presented as "textbook" ideals.

Parodocx Vineyard

David and Carol Hoffman are co-owners with Mark and Joanne Harris of the 30-acre Parodocx Vineyard at Landenberg, PA. All four are medical practitioners. They bought the property in 1994 and planted in 1998 and 1999.

White varieties are Pinot Gris, Pinot Blanc, Viognier, Chardonnay, Sauvignon Blanc, Auxerrois, and Muscat Ottonel. Reds are Cabernet Sauvignon, Cabernet Franc, Sangiovese, Touriga Nacional, Petit Verdot, Carmine, and Chambourcin. I tasted Viognier wine from this estate, and it was excellent, a variety to look out for from Pennsylvania.

The vineyard is averaging almost five tons per acre, and grapes are sold to wineries in three states. The wines have won medals in state competitions.

The vineyard is trained to the spur-pruned form of the Scott Henry trellis. Again the standard of shoot-positioning is first class. Good timing of shoot-positioning is indicated by the vertical shoots, when shoot-positioning is done too late, the shoots lie along the canopy.

The partners think of their vineyard as a "solar energy capture system," and they are convinced that divided canopies help them achieve high yields of ripe fruit with lower disease pressure. Early season shoot-thinning means canopies are very open with good fruit exposure.

I asked David why he thinks other growers do not use the system, as VSP is so common in the eastern U.S., even with high vigor vineyards where shading is common. David

SMART VITICULTURE



From left: Ike Kerschner, Mark Harris and David Hoffman beside Scott Henry-trained vines in Paradox Vineyard.

thinks many objections to the approach are based on perceptions rather than actual experience. Some objections seem trivial or misguided, like "They don't do it in France" and "Divided canopies give higher yields which ruin quality."

There are also perceptions about high costs, increased complexity, and lack of understanding that not all trellis systems are suited to every site. David and Mark have checked the maturity differences between tiers and found them to be negligible at harvest. Interestingly during my visit, the Scott Henry top tier was moving into veraison earlier than the lower one (as I had seen in New Zealand), but the bottom tier "catches up" during ripening.

David was emphatic about the yield issue: "Just because the canopy is divided does not mean it is high yielding." In fact, divided canopies have the ability to ripen more fruit, so some yield increase is acceptable. Quality will still be improved because shading is avoided.

Like Ike Kerschner, David and Mark are convinced that their systems are profitable. Their yields are higher, and fruit has less disease than in vineyards trained to VSP. Vineyard workers can be easily trained, and in the instance of Paradox Vineyard, they take real pleasure in doing something different.



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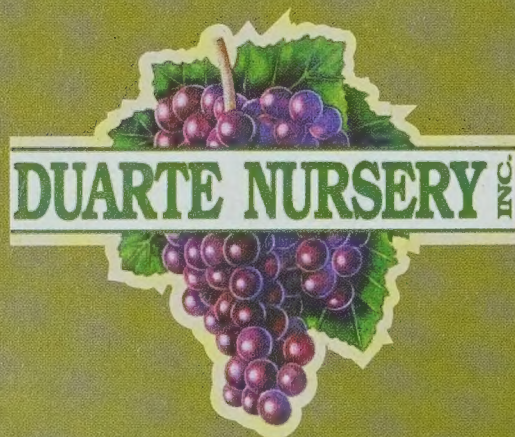


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